



TOOELE ARMY DEPOT  
Tooele, Utah

**Monitoring Well D-16  
Completion Report  
Phase II RFI Groundwater  
Investigation**

Contract Number: GS-10F-0179J



**US Army Corps  
of Engineers®**

*Submitted to:*  
U.S. Army Corps of Engineers  
Sacramento District

December 2005



*Prepared by:*  
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**MONITORING WELL D-16 COMPLETION REPORT  
PHASE II RFI GROUNDWATER INVESTIGATION  
TOOELE ARMY DEPOT  
TOOELE, UTAH**

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Prepared for:



December 2005

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TOOELE ARMY DEPOT  
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## ABBREVIATIONS AND ACRONYMS

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µg/L .....	micrograms per liter
ASC .....	Analytical Services Center
ASTM .....	American Society for Testing Materials
bgs .....	below ground surface
btoc .....	below top of casing
EPA .....	Environmental Protection Agency
gpm .....	gallon per minute
IWL .....	Industrial Wastewater Lagoon
MCL .....	maximum contaminant limit
NAD .....	North American Datum
NEB .....	Northeastern Boundary Plume
NGVD .....	National Geodetic Vertical Datum
NTU .....	nephelometric turbidity unit
NPL .....	National Priorities List
PDB .....	passive diffusion bag
PID .....	photoionization detector
ppm .....	parts per million
PVC .....	polyvinyl chloride
RCRA .....	Resource Conservation and Recovery Act
RFI .....	RCRA Facility Investigation
RL .....	reporting limit
SWMU .....	Solid Waste Management Unit
TCE .....	trichloroethene
TEAD .....	Tooele Army Depot
UAC .....	Utah Administrative Code
UDEQ .....	Utah Department of Environmental Quality
UID .....	Utah Industrial Depot
USACE .....	United States Army Corps of Engineers
USCS .....	Unified Soil Classification System
VOA .....	volatile organic analysis
VOC .....	volatile organic compound

## **1. INTRODUCTION**

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This report contains detailed information regarding the drilling, construction, development, and sampling of groundwater monitoring well D-16, located northeast of the Tooele Army Depot, Utah (TEAD). This report was prepared for the U.S. Army Corps of Engineers (USACE), Sacramento District, under Contract GS-10F-0179J, on behalf of TEAD by Kleinfelder, Inc., (Kleinfelder) and Parsons in Salt Lake City, Utah.

TEAD is an active military facility located approximately 35 miles southwest of Salt Lake City, Utah (Figure 1.1) and it has been in operation since 1942. TEAD has been a primary storage, maintenance, and disposal facility for conventional munitions since its inception. Due to impacts to groundwater quality resulting from this activity, TEAD was added to the National Priorities List (NPL) under the federal Superfund program in October 1990.

### **1.1 BACKGROUND INFORMATION**

Historical wastewater discharges to the unlined Industrial Wastewater Lagoon (IWL) at TEAD resulted in a large impacted groundwater plume beneath the eastern portion of the Depot. A large number of monitoring wells, piezometers, extraction wells, and injection wells have defined a trichloroethene (TCE) plume along downgradient, northern, and western extremes of the Depot. This occurrence of impacted groundwater was designated the Main Plume.

In 1986, TCE was detected in an offsite production well located north of the Industrial Area, approximately 5,000 feet northeast of the IWL. In 1994, well C-10 was installed at the northeastern boundary of the Depot. TCE was detected at a concentration of approximately 240 micrograms per liter ( $\mu\text{g/L}$ ) in groundwater sampled from well C-10, located directly across the road from the impacted offsite production well (Kleinfelder, 1998).

Additional groundwater investigations were conducted to further assess the nature and extent of groundwater contamination at the northeastern boundary of TEAD. These additional investigations indicated that the contamination in well C-10 and the adjacent offsite production well had likely originated from a source different from that attributed to the Main TCE plume. Thus, two plumes of groundwater contamination were indicated. This second, more easterly plume, was designated the Northeastern Boundary (NEB) Plume. The oil-water separator at Building 679 in the former industrial area (now the privately owned Utah Industrial Depot [UID]) was identified as a major source of this plume (Kleinfelder, 2002).

A subsequent investigation was designed to define the approximate offsite extent of the NEB Plume. The plume, which is relatively narrow beneath the former industrial area, extends

approximately 16,000 feet downgradient (to the north) from the identified source at Building 679 (Parsons, 2003a). The installation of groundwater monitoring well D-16 was conducted in accordance with the Phase II Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Solid Waste Management Unit (SWMU) 58 Work Plan (Parsons, 2003b) and Work Plan Sampling and Analysis Plan Addendum 1 (Parsons, 2004) that were approved by the USACE and the State of Utah Department of Environmental Quality (UDEQ) prior to initiating fieldwork.

## **1.2 PROJECT PURPOSE AND SCOPE**

Monitoring well D-16 is one of eight groundwater monitoring wells installed between September 2004 and January 2005 during the Phase II RFI at SWMU 58. SWMU 58 encompasses the source areas and the areas impacted by the Main and NEB TCE Plume. Objectives of the groundwater investigative component of the Phase II RFI are to:

- Refine the vertical limits and lateral extent of the Main and NEB chlorinated solvent plumes;
- Further characterize the distribution of contaminants within the plumes;
- Ascertain whether there are additional contaminant sources to the NEB Plume and assess their impacts to groundwater;
- Assess the risks to human health associated with the unmanaged (offsite) portion of the NEB Plume; and
- Refine the existing numerical groundwater flow and solute transport models with respect to fate and transport, in order to better predict the potential extent (stability) of the plume in the future.

Investigative efforts described in this completion report were supervised by a State of Utah-registered Kleinfelder geologist who was present for critical on-site activities. Before drilling began, a Right-of-Entry Permit was obtained from Tooele County, and a permit for well construction was obtained from the State of Utah Division of Water Rights. Copies of the Right-of-Entry Permit, the Request and Authorization letters, Applicant Start Card, and Driller Start Card are included in Appendix A. Underground utility clearance was obtained through the Blue Stakes Location Center.

Monitoring well D-16 was drilled, constructed, developed, and sampled between October 15, 2004, and November 23, 2004. Drilling and construction activities were conducted by Layne Geoconstruction (Layne) of Salt Lake City, Utah. Following completion of the well, Layne issued a Well Driller's Report, which is also included in Appendix A. Well development and groundwater sampling were completed by Veolia Water North American Operating Services, LLC, which operates the groundwater treatment plant at TEAD. Laboratory analyses were

provided by Analytical Services Center (ASC) of Lancaster, New York, a division of Ecology and Environmental, Inc. (E and E), a State of Utah, and a USACE-certified analytical laboratory. Down-hole geophysical logging was performed by RAS, Inc. of Golden, Colorado.

Monitoring well D-16 is located in the SE ¼ of Section 7, T3S, R4W, Salt Lake Base and Meridian. This well is accessed from Sheep Lane along the abandoned railroad grade, and then via a dirt/gravel road that accesses monitoring wells D-3, D-5, and D-7. A dirt track leading east from well D-7 provides access to well D-16. The primary purpose of monitoring well D-16 is to serve as a sentinel well that will detect lateral spreading of the NEB groundwater plume to the east and/or northeast in this area. A secondary objective of this and other sentinel wells that are being installed along the eastern margin of the NEB plume is to better define groundwater flow (Parsons, 2003b).

## **2. DRILLING, SEDIMENT SAMPLING, AND LOGGING METHODS**

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### **2.1 DRILLING**

Groundwater monitoring well D-16 was drilled by Layne Geoconstruction of Salt Lake City, Utah, between October 15<sup>th</sup> and October 20<sup>th</sup>, 2004 using a Becker AP-1000 percussion hammer drilling rig manufactured by Drill Systems. The AP-1000 advances a dual-walled 10-inch diameter drill pipe into the subsurface by means of a diesel-powered pile hammer. Circulating air is pumped down the space between the inner and outer walls of the drill rod to the drill bit, where formation cuttings are picked up and carried back through the center of the drill rod and out of the borehole as the air returns to the ground surface. Cuttings are separated from the discharging air by a cyclone. Dry cuttings were collected and spread on the ground around the well site whereas saturated cuttings were contained in 55-gallon drums pending analytical results.

### **2.2 SAMPLING OF DRILL CUTTINGS**

Cuttings were observed continuously as they discharged from the cyclone and were collected in 1-quart bags and chip trays. The cuttings were logged at 5-foot intervals or when significant changes in lithology occurred. Drive sampling, used in previous boreholes drilled as part of this program, was rarely successful due to refusal in coarse sediments and inability to anticipate encountering thin fine-grained layers. Thus, a more accurate and complete borehole log resulted from continuous observation of cuttings from the cyclone.

Drill cuttings were logged using the American Society for Testing Materials (ASTM) Method D2488-00. The Unified Soil Classification System (USCS) was used for designating the various types of unconsolidated material encountered. Where a conflict between the two methods was identified, the ASTM convention took precedence. Color of the drill cuttings (when wetted) was noted by referencing the Munsell color chart system. Estimated percentages of gravel, sands, and fines; degree of roundness and lithology/mineralogy of any gravel clasts; moisture content; degree of cementation; and any other notable attributes were routinely recorded in the sample description. The Becker Hammer Drilling method allows for a maximum clast size of about 6 inches to pass through the drill pipe to the surface, so while boulders and cobbles exceeding this dimension may exist, their percentages cannot be estimated.

Grab samples of drill cuttings from below the saturated zone were logged and screened for volatile organic compounds (VOCs) using a photoionization detector (PID). PID readings were also included on the boring log. PID readings from the grab samples from this boring ranged from 0.8 to 2.3 parts per million (ppm). A composite of these samples was submitted for VOC analysis, which was used to determine the proper means of disposal for all saturated cuttings

from this borehole. Saturated drill cuttings were containerized in 55-gallon drums and transported to the UID 90-day yard to await analysis.

### **2.3 RECORD KEEPING**

While on site, Kleinfelder's geologist maintained records of all activities in a bound field log book, on Daily Field Report forms, Drill Rig Inspection forms, Safety Meeting Forms, and Equipment Calibration Logs. Copies of these records are presented in Appendix B.

### **3. SUMMARY OF SUBSURFACE CONDITIONS**

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#### **3.1 GEOLOGIC LOG**

A Kleinfelder geologist was on site during to collect samples of drill cuttings in order to maintain a continuous geologic log of the subsurface conditions that were encountered. Lithologic descriptions and the geologist's observations were entered onto the geologic log. The geologic log of the cuttings that were sampled during drilling of the monitoring well D-16 borehole is included in Appendix C.

The geologic log indicates that the boring was drilled in unconsolidated valley fill sediments from the ground surface to a total depth of 255 feet bgs. Most of the subsurface sediments were poorly graded sand and gravel with varying amounts of boulders, cobbles, silt, and clay. The coarser-grained sediments (i.e., gravels) are interpreted to have been deposited in a dynamic high energy depositional environment of coalescing alluvial fans. They are interpreted to represent one or more of several types of alluvial fan deposits, including debris flow, stream channel, sheetflood, and sieve, that have been defined (Collinson, 1978) based on depositional process, location on the fan, deposit morphology, degree of sorting and bedding, etc. The majority of the coarse grained sediments consist of sub-rounded to sub-angular clasts of quartzite and limestone that appear water-worn. While some angular clasts are observed, these are likely products of the mechanical breaking caused by the drilling method.

Horizons of less permeable fine-grained sediments were encountered at depths of 146-147 and 252-254 feet bgs as indicated on the geologic log. While some of the finer-grained clay- and/or silt-rich sediment occurrences may be of lacustrine or floodplain origin, others may represent debris flows (Collinson, 1978) and/or possibly stream overbank deposits. The geologic log also indicates that some weak to moderately cemented and strongly cemented zones were also encountered during drilling at depths of 74-75, 113-127, 167-168, and 254-255 feet bgs. No bedrock was encountered during drilling of monitoring well D-16. Following well construction and development the depth to water was measured at 214.00 feet below top of casing (btoc) by Veolia Water. Perched water was not encountered during drilling of monitoring well D-16.

#### **3.2 GEOPHYSICAL LOGS**

As a secondary interpretive tool, down-hole geophysical logging of monitoring well D-16 was completed within the polyvinyl chloride (PVC) cased well following construction. Natural gamma ray (gamma) and induction electric (induction) logs were run simultaneously by RAS on December 7, 2004 using a combination gamma ray-induction tool manufactured by Century Geophysical Corporation of Tulsa, Oklahoma. The gamma and induction logs for this well are



contained in Appendix C. Data validation was attained via a repeat logging run of a selected stratigraphic interval within the well.

The former logging technique measures the natural gamma emissions emanating from the formation surrounding the borehole. This radiation is released from nuclei of an unstable element decaying to a more stable element. Potassium 40 is the element responsible for most of the gamma radiation detected by the gamma ray probe. This element is very abundant in a number of rock-forming minerals, such as potassium feldspar, that weather to clays. Thorium- and uranium-bearing minerals also produce a gamma ray response, but in most geologic environments, including the unconsolidated valley fill deposits at the project site, the potassium-40 isotope is most abundant. Hence, as the clay content of the sediment increases the gamma ray response also increases. Conversely, the gamma response becomes progressively weaker as the quartz content of the sediment increases. A comparison of this and other monitor well boring logs with their respective gamma ray logs shows a very strong correlation between finer-grained, clay-rich units and gamma ray peaks. Slight offsets between a gamma peak and the location of the fine-grained interval are attributed to an inability to exactly define the depths of unit contacts owing to the time required for the cuttings to travel up the borehole and reach the surface. The measurement scale of the gamma-ray log is in American Petroleum Institute (API) units, accepted as the international reference standard that allows consistent comparisons to be made between a wide variety of gamma-ray counting devices.

The gamma ray response is typically between 40 and 50 API units, which is somewhat higher than the background levels in D-12 and D-13. Only two fine-grained units (at 110-112 ft and 147-148 ft) were identified during the logging of this boring, and only one of those (at 147-148 ft) contains any appreciable clay. Surprisingly only the silty sand unit at 110-112 ft was associated with a distinct gamma peak (of about 65 API units). The other unit (at 147-148 ft) exhibits a weak conductivity high and a distinct conductivity low, but no discernible gamma ray peak. The absence of a more pronounced response for those zones may reflect one or more factors including clay mineralogy, e.g., a lack of potassium-bearing clay minerals such as illite.

Several stronger gamma peaks, including one that approaches 100 API units, were recorded within coarse-grained units, and may correlate with thin or discontinuous clayey/silty lenses within the gravel units. The coarser-grained sediment intervals are generally marked by a relatively uniform gamma response. This signature is compatible with the general absence of fine-grained clay-rich intervals as verified by the geologic log.

The induction log measures the conductivity from high frequency alternating currents that are induced into the geologic formation, and is best suited where the formation is characterized by low to medium (less than 50 ohm-meters) resistivity values, the geologic medium exhibits medium to high porosity, and the open borehole was advanced using mud or air as the drilling fluid. Induction logging can be performed in boreholes cased with PVC, but not with steel pipe.

Although the induction device measures conductivity, by convention the conductivity readings are converted to a resistivity curve when plotted on a down-hole log via a simple inverse relationship.

Three curves are shown on the induction logs that were run by RAS. They represent the direct conductivity (millimhos/meter) readings as designated by a dashed (“cond”) curve on the plot, a conductivity (“ap-cond”) curve designated by a dotted line that has been corrected for the temperature of the induction probe, and resistivity (ohm-meters) measurements derived from a conversion of the temperature-corrected conductivity readings that are depicted as a solid (“res”) line on the induction log plot. Note that although the conductivity and resistivity curves appear to mimic one another, the scales for the two properties are reversed since their relationship is an inverse one.

The resistivity and conductivity curves show highly variable response. The resistivity background appears to shift at approximately 110 ft bgs, changing from about 35-40 ohm-meters to about 45-55 ohm-meters. However, below about 200 ft the resistivity background appears to gradually decline. Whether this pattern is characteristic to more than one well is not known. There are a number of resistivity peaks between about 115 and 200 ft. A few of these highs appear to reflect the presence of limited caliche cementation. The variable response over this interval is interpreted to largely reflect differences in porosity, and moisture and clay content of the sediments. There is a significant drop in resistivity that corresponds to the depth (at 219 ft) at which groundwater was first noted in the geologic log. Conversely, that depth is marked by a spike in conductivity. The conductivity curves show the greatest fluctuations over the uppermost 50 ft of the borehole, with a few peaks going off-scale. Presumably these highs are responding to zones with elevated clay, although only one reference to possible clay is made for this interval (0 -50 ft) on the geologic log. The conductivity response for the remainder of the boring is largely quite uniform and subdued. However, conductivity peaks were recorded at the depths of the two fine-grained units mentioned during the discussion of the gamma response.

In summary, the induction electric and gamma logs appear consistent with the subsurface conditions as interpreted from the drilling response and geologic logging of the drill cuttings.

### **3.3 HYDROSTRATIGRAPHIC SECTION**

To aid in understanding the subsurface geology and water table configuration in the vicinity of this monitoring well boring, the geologic log for this well was plotted on a straight line cross section (B - B') trending north-south over a distance of approximately 9,000 feet that is also defined by monitoring wells D-12 and D-13 (Plate C-4). Well D-13 was projected onto the section; the projection distance for that well is provided on the cross section. The cross section location is illustrated on Plate C-3.

Study of the cross section suggests that the predominantly fine-grained sediment units do not appear to be laterally continuous between the three D-series wells that lie on or have been projected onto Cross Section B–B'. Thus, the correlation of these units from borehole to borehole is poor. This is partially due to the substantial distances between them (up to 1 mile).

The difficulty in correlating distinct fine-grained units is not surprising, given that the unconsolidated valley fill within SWMU-58 was largely deposited in a dynamic high energy depositional environment of coalescing alluvial fans. Fine-grained units deposited under such conditions are characterized by limited thickness and areal extent, and this also appears to hold true for the project area, in addition to well boring D-16. Many of the fine-grained silt- and/or clay-rich intervals pinch out over a few hundred ft due to a change in the depositional environment.

Another plausible explanation for limited areal extent is post-depositional erosion and sediment reworking. Channel erosion is strongly suspected of causing the substantial difference in the thickness of a clay-rich lacustrine or floodplain deposit encountered in two closely spaced borings at Building 600 in the Utah Industrial Depot. It almost certainly has been operative elsewhere.

There is another factor that may frustrate correlation of fine-grained units in this and other Phase II RFI groundwater monitoring wells. Most of these fine-grained units, even if they exhibit some lateral extent, were generally deposited on alluvial fan surfaces that are inclined several degrees or more. Over a distance of just a few hundred feet a dip of even a few degrees translates into a change in elevation of up to ten feet or more. Moreover, for monitoring wells spaced a thousand feet or greater, which is not atypical for the groundwater monitoring array at TEAD, differences in the elevation of a laterally continuous unit could be on the order of several tens of feet.

As per the fine-grained units, little success has been achieved attempting to correlate caliche-cemented zones that occur primarily in the gravels. The same general comments presented above for fine-grained sediment deposits also apply to correlation of cemented zones. The ability to correlate both fine-grained sediment units and cemented zones between monitoring wells in the project area may be contingent upon distinct downhole gamma and induction electric log signatures.

## **4. WELL CONSTRUCTION SUMMARY**

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### **4.1 CONSTRUCTION TECHNIQUES AND MATERIALS**

During drilling of monitoring well D-16 the 10-inch Becker Hammer drive casing was advanced to a depth of approximately 255 feet. Well construction occurred on October 21<sup>st</sup> and 26<sup>th</sup>, 2004. Monitoring well D-16 was constructed inside the 255 feet of drive casing and the bottom of the well was tagged at a depth of 251 feet bgs. Two 10-foot sections of threaded, 4-inch diameter Schedule 40 PVC well screen with 0.010-inch wide slots and 24 10-foot sections of 4-inch diameter Schedule 40 PVC blank casing were assembled and lowered inside the drive casing to the bottom of the borehole. The screen extends from 231 feet to 251 feet bgs. The well riser consists of 2.36 feet of aboveground blank well casing.

Silica sand (16–40) was added to the annulus between the PVC and the borehole in the interval adjacent to the well screen. To help minimize the risk of bridging and to confirm that the correct volume of sand was added, the sand was poured slowly into the annulus from the surface and continuously monitored until the top of the sand interval was approximately 10 feet above the top of the screen. The sand-pack interval was isolated from upper portions of the borehole with an 8-foot thick seal of bentonite clay pellets. The remaining annulus above the bentonite clay pellets was grouted to approximately 30 inches bgs with 30 percent solids bentonite slurry in accordance with Utah Administrative Code (UAC) R655-4-9.4.2. A well construction diagram is provided in Appendix D.

### **4.2 SURFACE COMPLETION AND SURVEY COORDINATES**

A locking, 6-foot long, 10-inch diameter protective casing was placed around the uppermost part of the monitoring well casing, with approximately 3 feet above and 3 feet below ground. Concrete was used to partially fill and anchor the protective casing, fill the upper 5 feet of the borehole annulus, and build a 3-foot square by 1-foot thick pad (6 inches above ground surface) around the finished well. The concrete pad was finished to slope away from the protective casing and was embedded with a brass survey monument.

Four 4-inch diameter steel bollards were positioned around the pad to protect it from vehicular traffic. The bollards stand approximately 4 feet above the ground surface and extend about 2 feet bgs into concrete-filled post holes.

Ward Engineering Group of Salt Lake City, Utah, surveyed the well on December 10, 2004. Coordinates for the well locations are referenced to the North American Datum (NAD) 1983 Utah State Plane Central Zone and the elevation to the National Geodetic Vertical Datum (NGVD) 1929. Survey data are included in Appendix D.

## **5. WELL DEVELOPMENT**

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Groundwater monitoring well D-16 was developed using swabbing, bailing, and pumping methods on November 1 and 2, 2004. Development continued for approximately 5 hours until the turbidity of the water produced was less than five nephelometric turbidity units (NTUs). All development water was collected and contained for later disposal pending analytical results (see Section 7.3). Well development records are included in Appendix E.

### **5.1 SWABBING AND BAILING**

Swabbing and bailing took place for 2 hours and 19 minutes. Swabbing was done with a loose fitting surge block with an oversized rubber disk, slightly smaller than the inner diameter of the screen. Periodic measurements of pH, temperature, electrical conductivity, turbidity, and comments regarding the appearance of discharge water were recorded on well development records (Appendix E). About 105 gallons of water were removed from well D-16 by bailing during development.

### **5.2 PUMPING**

After swabbing and bailing the well, development was completed using an electric submersible pump. The pump was lowered to the bottom of the screened interval and operated intermittently at rates ranging from 9.04 to 9.29 gallons per minute (gpm) for 2 hours and 40 minutes. During development pumping, the pump was periodically shut off and the water in the discharge piping was allowed to back-flush (surge) into the well. Pumping and periodic back-flush surging was continued until there was no noticeable increase in the discharge water turbidity. Periodic measurements of pH, temperature, electrical conductivity, turbidity, and comments regarding the appearance of discharge water were recorded on well development records. An estimated 1,134 gallons of groundwater were removed by development pumping. The final turbidity was measured at 0.65 NTU.

## **6. GROUNDWATER SAMPLING**

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### **6.1 SAMPLING METHODOLOGY**

Monitoring well D-16 was sampled using passive diffusion bag (PDB) sampling techniques. PDB sampling is performed without purging and involves lowering a polypropylene bag filled with distilled water to a predetermined depth. Once in place, the water within the PDB sampler is allowed to equilibrate with the surrounding groundwater for two weeks. During this time, VOCs diffuse into the distilled water. The PDB sampler is then removed from the well and water is transferred into three pre-preserved 40 mL volatile organic analysis (VOA) vials.

Because monitoring well D-16 was installed as a sentinel well, and no detectable VOCs were anticipated in groundwater at this site, only a single PDB sampler was deployed. One PDB sampler was placed in monitoring well D-16 on November 4, 2004. The sampler was placed at a depth of 240 feet btoc. The PDB sampler was retrieved from well D-16 and sampled on November 23, 2004. Three groundwater samples were collected from that sampler and assigned sample identifiers D-16GW001, D-16MS001, and D16SD001. D-16GW001 was the primary sample, while the other two samples represented the matrix spike and spike duplicate for quality control.

After the sample containers were filled, they were placed into an ice-chilled cooler and shipped overnight to ASC, a State of Utah and USACE-certified analytical laboratory, for VOC analysis. Chain-of-custody forms were filled out and used to document the sampling dates, analytical parameters requested, and proper sample handling. Completed chain-of-custody forms and cooler receipt forms are included in Appendix F.

### **6.2 GROUNDWATER ANALYTICAL RESULTS**

Groundwater samples were collected from monitoring well D-16 at a depth of 240 feet. Analysis for VOCs was completed using U.S. Environmental Protection Agency (EPA) Method 8260B. No analytes were detected above the reporting limit (RL), indicating that the eastern margin of the NEB TCE Plume (as defined by the 5 µg/L TCE isoconcentration contour) in this area lies to the west of monitoring well D-16. The laboratory report summarizing the groundwater analytical results from this well is included in Appendix F.

## **7. INSTALLATION RESTORATION WASTE**

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### **7.1 DECONTAMINATION METHODS**

To help minimize the chance that non-dedicated equipment could cross-contaminate groundwater or sediment at well D-16, a rigorous decontamination program was followed. A decontamination station was constructed in the temporary UID RCRA 90-day yard (located south of building 614) that could accommodate the drill rig, drill pipe, and other equipment as needed. Decontamination of equipment was conducted with approved water from TEAD production well WW-3 using a steam cleaner/high-pressure washer. Equipment wash and rinse water was contained in a sump within the decontamination station, pumped to a frac tank labeled as hazardous waste and stored in the UID 90-day yard for later disposal following characterization of the liquid waste stream.

### **7.2 DISPOSAL OF DRILL CUTTINGS**

Drill cuttings in the unsaturated zone were collected below the cyclone in a wheelbarrow and spread evenly on the ground around the well site. Once groundwater was encountered, saturated cuttings were containerized in 55-gallon drums and transported to the UID 90-day yard. A saturated sample was collected every 5 feet and, upon completion of the borehole, these samples were composited to a single sample and submitted for laboratory analysis for VOCs. Lab results indicated VOCs were not detected in the cuttings from well D-16. Following TEAD approval, the cuttings were returned to the site of D-16 and spread evenly on the ground surface. A copy of the laboratory results is included in Appendix F.

### **7.3 DISPOSAL OF WASTEWATER**

Water derived from the development of well D-16, including equipment rinse water, was transported from the well site to the UID temporary 90-day yard by MP Environmental Services, utilizing a 5,000 gallon capacity tanker truck, and pumped into a 21,000 gallon capacity frac tank. At the time of transfer the frac tank already held several thousand gallons of water generated from decontamination and development activities associated with wells D-12 and D-13. Following the transfer of equipment rinse and development water from monitoring well D-16, the tank was closed and the water sampled for VOCs to determine the most suitable disposal option for this waste stream.

Analysis of the waste characterization sample collected from the frac tank following its closure, i.e., after water associated with the installation and development of wells D-12 and D-13 had been added, revealed the presence of a number of VOCs (0.590 µg/L benzene, 23.3 µg/L

ethylbenzene, 90.8 µg/L m,p-xylenes, 45.3 µg/L o-xylene, 330 µg/L methylene chloride, 2.22 µg/L naphthalene, and 2970 µg/L toluene) that were not detected in the PDB samples of the groundwater taken from these three wells. It was eventually determined that the source of these constituents was a section of previously contaminated hose used on the MP Environmental tanker to pump purge and decontamination water from the tanker during the development of one of the aforementioned monitoring wells.

The water was designated as a F001, F002, and F005 listed hazardous waste based on the VOCs present. As a result, the waste could not be processed at the TEAD groundwater treatment facility operated by Veolia Water. Moreover, because the concentrations of methylene chloride and toluene exceeded the permissible limits in wastewater for land disposal, this waste stream was profiled, manifested, and transported to the Clean Harbors Aragonite disposal facility for incineration on December 22, 2004. A copy of the disposal memo is included in Appendix H.





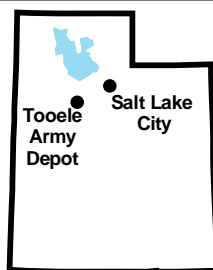
## 8. REFERENCES

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## LEGEND

-  Installation Boundary
-  Investigation Boundary



SWMU 58  
PHASE II RFI  
TOOELE ARMY DEPOT  
TOOELE, UTAH



# FIGURE 1.1 SITE LOCATION MAP

Source: USGS Tooele, Utah 1 x 2 Quadrangle, 1970



## **APPENDIX A**

AMENDMENT THREE <sup>ONE K</sup>  
TO <sup>SMB</sup>  
DEPARTMENT OF THE ARMY

State

D-4

D-5

D-7

D-16

Exp. 15 Aug 08

RIGHT-OF-ENTRY No. 4543  
FOR SURVEY AND EXPLORATION ACTIVITIES  
ON LANDS ADMINISTERED BY THE  
STATE OF UTAH, SCHOOL AND  
INSTITUTIONAL TRUST LANDS ADMINISTRATION

PROJECT: Tooele Army Depot, Utah

CONTRACT No. DACW05-9-02-0399

OWNER: State of Utah, School and Institutional Trust Lands Administration

Right-of-Entry No. 4543 (Corps of Engineers Contract No. DACW05-9-02-0399), hereinafter called "said Right-of-Entry", granting to the Government the irrevocable right of ingress and egress upon the lands of the Owners located in the State of Utah, County of Tooele, described as Assessor's Parcel Numbers (APN) as follow: 2-138-4 and 2-138-5 and a 50.18-acre parcel described as being immediately south of APN 2-138-4, to install groundwater monitoring wells, to periodically sample groundwater from said wells, and to enter and exit over and across the permitted property to install wells and sample water from said wells, is hereby amended in the following particulars:

1. The Government is hereby granted the right to install and provide access to an additional monitoring well in accordance with and under the terms and conditions of the Right-of-Entry. The location of said well, herein designated "D-16" and that of the preexisting wells designated "D-4", "D-5", and "D-7" are as shown in green and the access routes thereto are as shown in orange on the attached Exhibit "A-1".

2. The expiration date of said Right-of-Entry is hereby designated 15 August 2008.

3. Exhibit "A" is hereby deleted and Exhibit "A-1" is substituted therefor.

-----NO PARTICULARS FOLLOW-----

D-16-1

Encl 11  
Page 1 of 2

Retain

Said right of entry is amended in the above particulars only, and all other conditions thereof shall remain binding and in full force and effect. This amendment shall henceforth be considered a part of said right of entry as if fully and completely written therein.

DATED this 14th day of NOVEMBER, 2003.

THE STATE OF UTAH  
SCHOOL AND INSTITUTIONAL  
TRUST LANDS ADMINISTRATION

By [Signature]

Its \_\_\_\_\_

UNITED STATES OF AMERICA

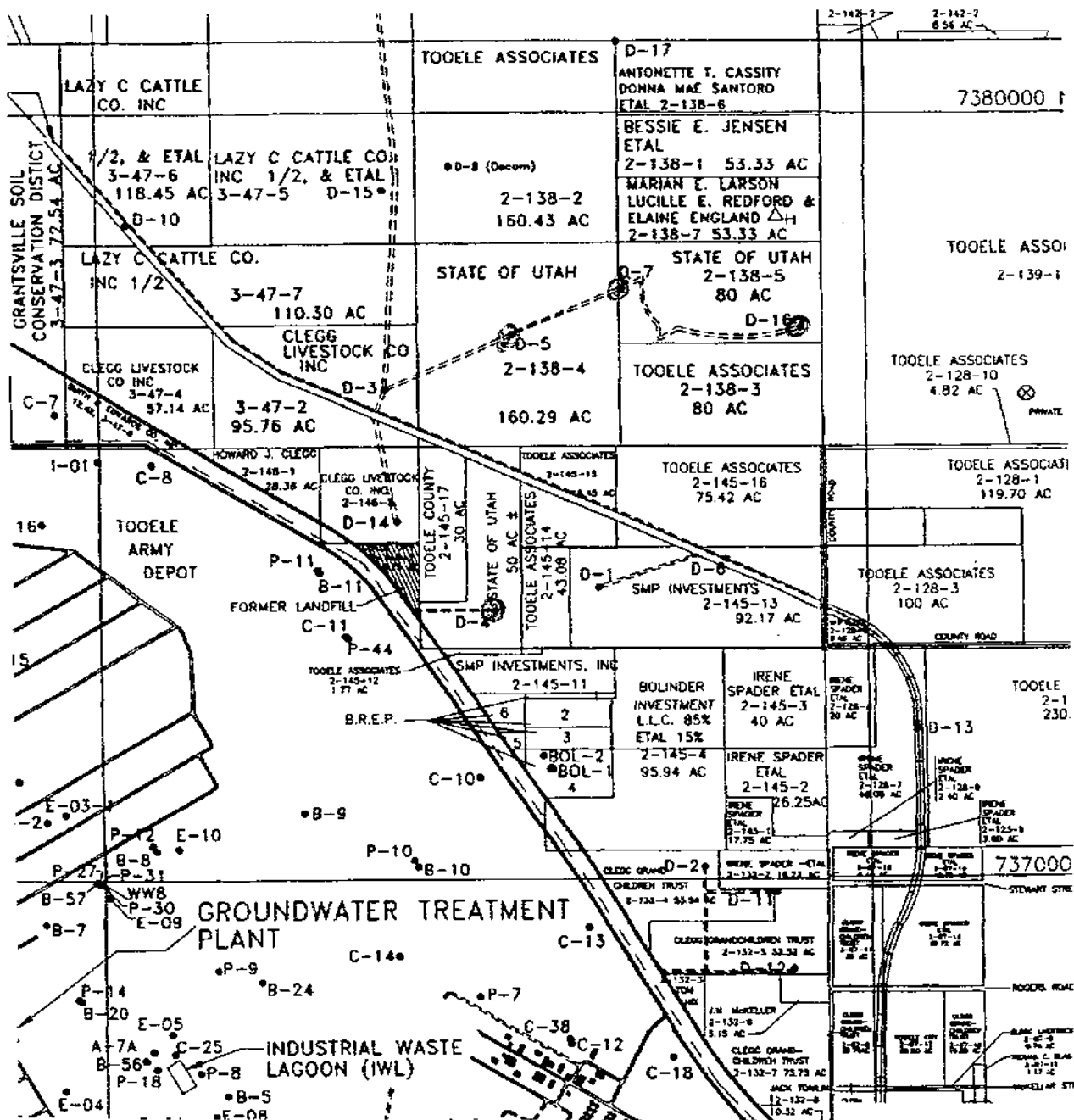
By [Signature]

Its \_\_\_\_\_

MARVIN D. FISHER  
Chief, Real Estate Division  
U.S. Army Engineer District, Sacramento

Approved as to Form  
Mark L. Shurtleff  
ATTORNEY GENERAL

By: [Signature]



DEPARTMENT OF THE ARMY  
SACRAMENTO DISTRICT,  
CORPS OF ENGINEERS  
AUGUST 2003

TOOELE ARMY DEPOT

UTA

GROUNDWATER TREATMENT SYSTEM  
AND MONITORING WELLS -  
ON AND OFF-SITE PHASE II WELLS

## SITE MAP

TOOELE ARMY DEPOT, UTAH  
Right-of-Entry  
Contract No. DACA05-9-02-0399  
Amendment No. 1  
Exhibit "A-1"

D-16-3

**DIVISION OF WATER RIGHTS**  
**REQUEST FOR NON-PRODUCTION WELL CONSTRUCTION**  
(for wells deeper than 30 feet)

Well Type (check one): Provisional ( ) Monitor (X) Cathodic Protection ( ) Heat Exchange ( )

Applicants Name: TOOELE ARMY DEPOT

Mailing Address: SIOTE-EO-EO (BLDG 8)

TOOELE ARMY DEPOT TOOELE, UTAH 84074

Contact Person: MR. LARRY McFARLAND

Phone: (435) 833-3504

Proposed Start Date: 08/02/04

Anticipated Completion Date: 12/31/04

Well Drillers License No: 215

Proposed No. of Wells: 10

**PROPOSED LOCATION OF WELLS:**

County: TOOELE

NO./SQ. DISTANCE (feet)	EAST/WEST DISTANCE (feet)	SECTION CORNER	SECTION	TOWNSHIP	RANGE	BASE	DIAMETER (inches)	DEPTH (feet)
N1000	W1300	W4	15	2S	1W	SL	2	100

Use back of form or additional paper if more room is needed

EXPLANATORY: REFER TO ACCOMPANYING TABLE FOR INFORMATION ON PROPOSED  
WELLS.

Signature of Applicant

Date

FOR OFFICE USE ONLY

Date of Request: \_\_\_\_\_

Approval Date: \_\_\_\_\_

Approved by: \_\_\_\_\_

Provisional/Monitor Well No. \_\_\_\_\_

Water Right Number (if available): \_\_\_\_\_

Request for Non-Production Well

LOCATION DATA FOR PROPOSED GROUNDWATER MONITORING WELLS  
UTAH INDUSTRIAL DEPOT, TOOELE, UTAH

Well Identifier	-proposed well location-		-referenced section corner-		-well location relative to section corner-		Section Corner	Section	Township	Range	Base	Diameter (inches)	Depth (feet)
	State Plane (northing)	State Plane (easting)	State Plane (northing)	State Plane (easting)	North/South Distance (feet)	East/West Distance (feet)							
C-41	7384702	1407022	7385112	1409428	South 413	West 2406	NE	30	3S	4W	SL	4	390
C-42	7385715	1406276	7385067	1404092	North 649	East 2187	SW	19	3S	4W	SL	4	355
C-43	7387012	1405964	7385067	1404092	North 1846	East 1863	SW	19	3S	4W	SL	4	320
C-44	7387575	1404058	7385067	1404092	North 2507	West 34	SE	24	3S	5W	SL	4	280
C-45	7370246	1405151	7370371	1404071	South 125	East 1076	NW	19	3S	4W	SL	4	310
C-48	7370246	1405151	7370371	1404071	South 125	East 1076	NW	19	3S	4W	SL	4	550
D-12	7367916	1410001	7370415	1409392	South 1731	East 433	NE	19	3S	4W	SL	4	400
D-13	7371871	1410626	7370415	1409392	North 1456	East 1355	SW	17	3S	4W	SL	4	355
D-14	7374293	1403758	7375578	1404047	South 817	West 256	NE	13	3S	5W	SL	4	240
D-16	7377309	1409136	7375667	1409370	North 1644	West 234	SE	7	3S	4W	SL	4	250





OLENE S. WALKER  
Governor  
GAYLE F. MCKEACHINIE  
Lieutenant Governor

State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
Division of Water Rights

ROBERT L. MORGAN  
Executive Director

JERRY D. OLDS  
State Engineer/Division Director

TOOELE ARMY DEPOT  
SIOTE-EO-EO (BLDG 8)  
TOOELE ARMY DEPOT  
TOOELE, UT 84074

July 28, 2004

Dear Applicant:

RE: MONITOR WELL#: 0415004M00

Reference is made to your request to drill 10 MONITOR WELL(S). The anticipated drilling depths will exceed the minimum regulated and reporting depth of 30 feet, thereby requiring permission from the Division of Water Rights to proceed with this project.

The specifications outlined in your well project request dated July 28, 2004, meet the State Engineer's requirements and permission is **HEREBY GRANTED**. Therefore, this letter is your authorization to proceed with the construction of the well(s) in accordance with those specifications and with respect to the following provisions:

- 1) Small diameter casing is to be used in the construction of the well(s) and no more water is to be diverted than is necessary to determine the quality of the ground water by obtaining representative samples as required by the project.
- 2) The well(s) must be drilled by a currently licensed Utah driller and must be drilled in a manner consistent with the recommended construction standards cited in the Utah State Administrative Rules for Well Drillers.
- 3) The enclosed Driller (START) Card form must be given to the licensed driller for his submittal prior to commencing well construction. The other enclosed form is the 'Applicant Card.' It is **YOUR RESPONSIBILITY** to sign and return this Applicant Card form to our office upon well completion.
- 4) If complete information is not available in the initial application, it is the **APPLICANT'S RESPONSIBILITY** to provide, upon completion, descriptive locations of the wells referenced by course and distance from established section corners, e.g. North 565 feet and West 1096 feet from the SE corner of Section 35, T2S, R5W, SLB&M.
- 5) At such time as the well(s) are no longer utilized to monitor ground water and the intent of the project is terminated, the well(s) must be temporarily or permanently abandoned in a manner consistent with the Administrative Rules.

NOTE: Please be aware that your permission to proceed with the drilling under this authorization expires January 28, 2005.

Sincerely,

*John F. Mann, P.E.*  
John F. Mann, P.E.  
Regional Engineer

1394 West North Temple, Suite 220, PO Box 146000, Salt Lake City, UT 84114-6300  
telephone (801) 538-7240 • facsimile (801) 534-3467 • [www.waterrights.utah.gov](http://www.waterrights.utah.gov)

**Utah!**  
Where ideas connect™

APPLICANT CARD for Monitor WELL#: 0415004M00

IMPORTANT: THIS CARD MUST BE COMPLETED, SIGNED AND RETURNED BY THE WELL  
OWNER/APPLICANT AS SOON AS THE WELL IS DRILLED BY A LICENSED UTAH WATER  
WELL DRILLER.

OWNER/APPLICANT NAME: TOOELE ARMY DEPOT

MAILING ADDRESS: SIOTE-EO-EO (BLDG 8), TOOELE ARMY DEPOT, TOOELE, UT 84074

PHONE NUMBER: 435-833-3504

WELL LOCATION: You are authorized to drill 10 Monitor Wells. SEE BELOW.

WELL UTM COORDINATES:

WELL ACTIVITY: NEW ☒ REPAIR ( ) REPLACE ( ) ABANDON ( )  
CLEAN ( ) DEEPEN ( )

WELL COMPLETION DATE: \_\_\_\_\_

NAME OF DRILLING COMPANY/LICENSEE: \_\_\_\_\_

Owner/Applicant Signature

Date

\*\*\*COMPLETE, SIGN AND RETURN THIS PORTION UPON FINAL WELL COMPLETION -  
DO NOT GIVE THIS CARD TO LICENSED WELL DRILLER - YOU MUST RETURN IT.

STATE OF UTAH DIVISION OF WATER RIGHTS Phone No. 801-538-7416

Fax No. 801-538-7467

COMMENTS: \_\_\_\_\_

MONITOR WELL LOCATIONS:

- ( 1 ) N 1644 W 234 from the SE corner, S07 T 3S R 4W SLBM
- ( 2 ) N 1456 E 1355 from the SW corner, S17 T 3S R 4W SLBM
- ( 3 ) N 649 E 2187 from the SW corner, S19 T 3S R 4W SLBM
- ( 4 ) N 1946 E 1863 from the SW corner, S19 T 3S R 4W SLBM
- ( 5 ) S 173 E 433 from the NE corner, S19 T 3S R 4W SLBM
- ( 6 ) S 125 E 1076 from the NW corner, S19 T 3S R 4W SLBM
- ( 7 ) S 125 E 1076 from the NW corner, S19 T 3S R 4W SLBM
- ( 8 ) S 413 W 2406 from the NE corner, S30 T 3S R 4W SLBM
- ( 9 ) S 817 W 256 from the NE corner, S13 T 3S R 5W SLBM
- (10) N 2507 W 34 from the SE corner, S24 T 3S R 5W SLBM

AUG-

DRILLER (START) CARD for Monitor WELL#: 0415004M00

IMPORTANT: THIS CARD MUST BE RECEIVED BY THE DIVISION OF WATER RIGHTS PRIOR TO THE BEGINNING OF WELL CONSTRUCTION -- REQUIRED ONLY FOR WELLS DEEPER THAN 30 FT.

OWNER/APPLICANT NAME: TOOELE ARMY DEPOT

MAILING ADDRESS: SIOTE-EO-EO (BLDG 8), TOOELE ARMY DEPOT, TOOELE, UT 84074

PHONE NUMBER: 435-833-3504

WELL LOCATION: You are authorized to drill 10 Monitor Wells. SEE BELOW.

WELL UTM COORDINATES:

WELL ACTIVITY: NEW ☒ REPAIR ( ) REPLACE ( ) ABANDON ( )  
CLEAN ( ) DEEPEN ( )

PROPOSED START DATE: 9-1-04

PROJECTED COMPLETION DATE: 8-1-05

LICENSE #: 625 LICENSEE/COMPANY: Layne Christensen Co.  
58 8-29-04

Licensee Signature

Date

NOTICE TO APPLICANT: THIS CARD IS TO BE GIVEN TO A LICENSED UTAH WATER WELL DRILLER FOR HIS SUBMITTAL PRIOR TO WELL CONSTRUCTION.

STATE OF UTAH DIVISION OF WATER RIGHTS Phone No. 801-538-7416

Fax No. 801-538-7467

## MONITOR WELL LOCATIONS:

- ( 1 ) N 1644 W 234 from the SE corner, S07 T 3S R 4W SLBM
- ( 2 ) N 1456 E 1355 from the SW corner, S17 T 3S R 4W SLBM
- ( 3 ) N 649 E 2187 from the SW corner, S19 T 3S R 4W SLBM
- ( 4 ) N 1946 E 1863 from the SW corner, S19 T 3S R 4W SLBM
- ( 5 ) S 1731 E 433 from the NE corner, S19 T 3S R 4W SLBM
- ( 6 ) S 125 E 1076 from the NW corner, S19 T 3S R 4W SLBM
- ( 7 ) S 125 E 1076 from the NW corner, S19 T 3S R 4W SLBM
- ( 8 ) S 413 W 2406 from the NE corner, S30 T 3S R 4W SLBM
- ( 9 ) S 817 W 256 from the NE corner, S13 T 3S R 5W SLBM
- (10) N 2507 W 34 from the SE corner, S24 T 3S R 5W SLBM



## Construction Information

DEPTH (feet)		CASING			DEPTH (feet)		<input checked="" type="checkbox"/> SCREEN	<input type="checkbox"/> PERFORATIONS	<input type="checkbox"/> OPEN BOTTOM
FROM	TO	CASING TYPE AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM. (in)	FROM	TO	SCREEN SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per manufacturer)
0	230	4" Sch. 40 PVC	40	4	230	250	.010	4	Factory Slc

Well Head Configuration: Above GradeAccess Port Provided? ☒ Yes ☐ NoCasing Joint Type: Flush ThreadPerforator Used: N/AWas a Surface Seal Installed? ☒ Yes ☐ NoDepth of Surface Seal: 225 feetDrive Shoe? ☒ Yes ☐ NoSurface Seal Material Placement Method: Tremie Bentonite Pellets and Bentonite Grout

DEPTH (feet)		SURFACE SEAL / INTERVAL SEAL / FILTER PACK / PACKER INFORMATION		
FROM	TO	SEAL MATERIAL, FILTER PACK and PACKER TYPE and DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)
0	218	Bentonite Grout	54 Bags	50 lbs each
218	225	Bentonite Pellets	4 Buckets	50 lbs each
225	255	16-40 Silica Sand	24 Bags	50 lbs each

## Well Development and Well Yield Test Information

DATE	METHOD	YIELD	Units Check One		DRAWDOWN (ft)	TIME PUMPED (hrs & min)
			GPM	CFS		
	N/A					

## Pump (Permanent)

Pump Description: N/A

Horsepower: \_\_\_\_\_ Pump Intake Depth: \_\_\_\_\_ feet

Approximate Maximum Pumping Rate: \_\_\_\_\_

Well Disinfected upon Completion? ☐ Yes ☐ No

## Comments

Description of construction activity, additional materials used, problems encountered, extraordinary circumstances, abandonment procedures. Use additional well data form for more space.

## Well Driller Statement

This well was drilled and constructed under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name: LAYNE CHRISTENSEN COMPANYLicense No. 626

Signature: \_\_\_\_\_

Date: February 4, 2005

(Typed Well Driller)

## **APPENDIX B**

10/15/04 Friday

7:45 Tom calls to say they will be outside by 8:00. I was planning on showing around 10:00 but he says they need access to 90 Day yard to get boom truck to set well protector so I take off (They have no 90-Day yard key)

8:55 I arrive at 90-Day yard. Crew has waded there for me (?)

Nate gets pipe truck, Dave gets boom truck and we proceed to D-13.

9:30 Crew has to hand dig cobble out of hole to get the 10" diameter protector in the 9" hole. They also load up drums and materials on pallets and generally clean up site. I run to town for gas.

10:30 Back at D-13. Crew is mixing concrete for well protector. Dave must run to town for new bit. Carl Cole onsite. He has a lock for this well. Richard call and asks that I go get water levels from C-19 and C-21.

10:50 C-19 = 348.51' TOC

11:03 C-21 = 361.56' TOC

12:1 I go to D-13. No one outside. Drums and rod truck are gone. I go to D-16.

12:10 @ D-16 Tom and Nate are setting rig up on plastic.

12:30 Dave arrives with bit. Tom takes off for compressor. 13:10 H/S Tailgate.

13:30 Crew is making minor rig repairs and filling fluids.

14:00 Crew is attaching bit to 9" pipe.

14:04 Begin Drilling [D-16]

14:40 Carl Cole onsite ~ 30 ft

15:20 Carl leaves site - he will put lock on D-13.

16:30 D-16 drilled to 110' bgs. Crew fuels rig with what's left in truck and does some minor maintenance.

16:45 All hands off site.

~~10/15/04~~

Monday 10/18/04

weather overcast (28°) no wind

- 7:05 I arrive at building 614 for chip trays
- 7:15 I call Tom. He is just getting to the rig. It rained last night but he says the road is in good shape.
- 7:50 I arrive at rig. Nate & Tom have fillers compressor from truck diesel storage but must go to town to reload for the rig. I do rig inspection.
- 8:45 Crew back onsite. Dave is not here today for dental reasons. Crew fuels rig.
- 9:00 H & S tailgate
- 9:20 Begin drilling @ 110
- 9:33 Hammer will not fire correctly
- 9:50 Crew is pulling 10' casing so they can lower down hammer and see what's wrong
- 10:05 Tom has determined fuel pump ~~assembly~~ is not working so he has called the shop to send out a new one. He is going to replace the injector while he is at it
- 11:00 Tom & Nate go to town for parts and to meet whoever is running out the new fuel pump. I call Richard with the update.
- 11:55 Tom & Nate return & start working on rig
- 13:25 Pump installed but it is not functioning properly. Tom believes it is defective. Chris Davis is on the way to troubleshoot
- 13:35 I call Richard to see if I should stay or go. He suggests I wait for Chris
- 14:05 Chris Davis onsite to try to repair pump
- 14:45 Crew is unable to effect repairs. They will take both pumps back to shop
- 15:00 All hands offsite
- 16:40 Tom calls me to say they have purchased a pump from another rig, brought it to site and installed it and it is functional. We will drill in morning

J. H. Lawrence 10/19/04



Tuesday 10/19/04

weather overcast (35°) slight  
rain, no wind

- 6:40 Jeff Bigelow calls and asks that I leave D-13 well construction diagram and drum locks in building 614. He is developing D-13 and doing a drawdown test on D-12 today
- 6:55 I arrive at 614
- 7:15 Jeff arrives at 614. I head to D-16
- 7:28 At sheep lane gate Tom stops to tell me he is going to D-13 to pick up remaining equipment. I wait at gate.
- 7:40 Carl Cole stops by for an update
- 8:04 Tom arrives with an outhouse on a trailer that "outback shack" has left for us at D-12. We all head in to site from gate.
- 8:20 We have H<sub>2</sub>S tailgate
- 8:35 I do rig inspection - check out new fuel pump installation
- 8:40 Crew adds a 10' piece of casing. TOC = 120'
- 8:43 Begin drilling @ 110'
- 9:03 120' hrs - Still not working quite right. Crew removes shims that regulate injector mist volume and this seems to fix problem.
- 9:37 Drilling again. While drilling crew removes exhaust hose from cyclone and cleans inner walls of cyclone.
- 12:42 At 218 we encounter first water. We decide to shut down for lunch and let water equilibrate and get a w.t. before continuing. Crew sets up secondary containment tank & we label drums.
- 14:20 Water Level = 213.4 so our target depth is 255'
- 15:30 @ 231 the camlock holding on the cyclone hose broke in half. We must shut down to replace. I phone Carl and Richard with the update and secure the drums thus far generated. It is beginning to rain.
- 15:45 Crew leaves site. I go to IOD office to meet Larry McFarland to give him Carl Cole's cell phone which we found at site.
- 15:58 Offsite

Jeff Bigelow

Wednesday 10/20/04

weather: Rain (~40°)

- 7:28 I arrive at gate. 30 mph wind to the north.  
It is raining buckets. I call Tom. He has made it to the rig but almost got stuck.
- 8:05 I am inside. Crew is unloading well materials in a deluge. I do rig inspection.
- 9:10 After much discussion with all parties about continuing in the weather we decide to press on.
- 9:15 H's S. tailgate.
- 9:24 Begin drilling at 231'.
- 10:41 Hole completed to 255'. Some clay and cementation at 252' to 255' so I call Richard & Carl and suggest we set screen at 252 at the deepest. They concur.
- 10:50 We have 5 Hazardous Waste Drums on the boom truck and Dave is going to try to get it to sheep lane before the road gets any worse.
- 11:15 Crew has successfully driven drums to sheep lane. They are back at site and in truck waiting for the rain to ease off a bit. Very strong gusty winds as well. I catch up paperwork.
- 11:50 Chris Davis outside delivering lunch. Jeff Bigelow is developing well D-13 and will be manifesting development water to 90-day yard at 13:00 and has set MP up to pickup our drums at 15:00.
- 12:30 Chris has decided weather is too bad to back well so we shut down and head out.
- 12:48 We are out at sheep lane - barely, road is underwater. I call Jeff to say crew is done with well today, he says have them standby to move drums at 15:00.
- 14:03 Jeff calls and says they will not make the 15:00 pickup so we will reschedule. I call Tom & tell him go home.
- 14:50 I drive to drum truck and reload drums.
- 15:00 At 90 day yard Jeff is pumping free water off drums into tank. He needs copies of all my paperwork I drive to motel to procure.

10/20/04 (cont)

57

15:50 I arrive at 614 & make copies for Jeff

16:00 Offsite. Have agreed to meet MP and drillers  
@ 8:00 am to all his drums and try to  
get us to build well

W. H. Lane  
10/20/04

Thursday 10/21/04

weather overcast (~50°)

wind - 10 mph to NE

07:30 My battery is dead in motel lot. I call Tom to come jump me. I call Larry McFarland to tell him we may be a bit late

7:50 Tom arrives & gets me going

8:10 We arrive at sheep lane gate. MP driver Gary Hill is outside. Crew positions boom truck to transfer 5 drums. Larry and Dean Reynolds are outside. Larry signs manifest # P4012 as generator

8:42 Drums Loaded. We head to TEAD-VID 90 Day yard

8:51 Arrive at yard and unload drums. Dean Signs as Facility Owner for drums PARSN20429301 thru 04 and PARSN20429401. I sign MP ticket # 0517854

9:25 We lock 90-Day & head to D-16

9:49 Arrive at site. Roads are muddy but passable. Crew warms rig and I do rig inspection

10:00 We leave H&S tailgate

10:15 Crew begins by taking water level = 210.4 bgs. We will set well screen from 250 to 230.

Crew lowers 20 ft of Schedule 40 4" - 0.010 sbt well screen down hole and 235 feet of 4" schedule 40 blank well casing down hole. (This occurs after raising 9" casing 4 feet off hole bottom and sounding to make sure bit is open)

11:10 Well casing is on bottom and then raise until top of casing is 5.0 feet above ground surface. Crew then begins adding 50 lb bags of 16-40 Colorado silica by pouring in top of well. It is beginning to rain hard again. The sand is wet from the endless rain yesterday and is slow going down the casing. Crew is having to chase it down using approved water.

12:30 After adding 24 bags of sand Tom sounds top of

10/21/04 (cont)

sand at 220.9. This is a bit higher than we had desired but wet sand was adhering to 9" casing wall and a large slug must have released at the last Volume Calculation as done previously on page 48

for a 9" borehole 1 linear foot of hole is  $0.44 \text{ ft}^3$

" " 9" " with a 4" well inside 1 linear foot of hole is  $0.35 \text{ ft}^3$  (annulus)

so from 255 to 250:  $5 \times 0.44 \text{ ft}^3 = 2.2 \text{ ft}^3$

and from 250 to 220.9:  $29.1 \times 0.35 \text{ ft}^3 = 10.2 \text{ ft}^3$

$$2.2 + 10.2 = 12.4 \text{ ft}^3$$

one bag of sand is  $\sim \frac{1}{2} \text{ ft}^3$  so  $12.4 / \frac{1}{2} = 24.8$  bags

12:50 Crew has now ~~added~~<sup>MI</sup> pulled 45 feet of casing so bit is at 210' bgs (just at water level). Hole is staying open.

They now add 4 - 5 gallon buckets of cetco coated bentonite pellets. Tom sounds top of pellets at 213.2

Cetco states ~~28.25~~<sup>80</sup> ~~MI pounds of tablets fills 1 ~~linear~~<sup>MI</sup> foot<sup>3</sup>~~

So 200 lbs should fill  $2.5 \text{ ft}^3$ . At  $0.35 \text{ ft}^3$  per linear ft

in a 9" hole with 4" well annulus 200 lbs should fill  $2.5 / 0.35 = 7.14 \text{ ft}$ .

Tom sounds top of bentonite at 213.2 ft so we are good. Bentonite seal is below water so we need not hydrate. Tom says we need water to mix grout slurry tomorrow so we tie down loads on water trucks and will attempt to get them out on muddy road.

13:25 Both trucks have made it to the gate so I call Gary Parter and ask if anyone can get us water from Water Well 3 at UID. He can meet us in 10 minutes.

13:50 Procuring water at WW3. Tom runs to town for lunch while we load water.

14:20 On the way back to D-16 Nate gets pipe truck stuck in mud.

15:05 Crew still trying to unstuck truck. Larry McFarland onsite.

15:20 Crew will call when unstuck. I leave for SLC.

*[Signature]* 10/21/04

Friday 10/22/04

weather: offsite

I am in contact with Richard Jurik, Carl Cole and Tom Kern. Crew brought in a bull dozer to pull the water truck out of its hole and the support vehicle which was stuck trying to do the same. Because they are unable to get water (Depot Employees are off on Fridays) they will work on the surface completion (bellows and pan) for D-13 today and we will meet on Monday at UAD 90-Day yard and refill truck with water which crew unloaded while trying to get unstuck.

Wattman 10/22/04

Monday 10/25/04

weather rain mixes with  
snow (430°) no wind

- 7:50 I arrive at 90-Day yard
- 8:04 Crew arrives. I phone Gary Parker to have someone access water well 3. Crew jumps battery in van truck
- 8:25 Still no help at W.W. 3. I call Gary Parker again. He is getting to it!
- 8:50 Gary Polaski arrives with key to W.W. 3.
- 9:07 We are loaded with water and head for D-16
- 10:04 Water truck gets stuck at the top of the hill on the west slope of the arroyo. Tom and Dave go to get the D-4 track dozer that is parked by the rig
- 10:32 Dave is back with the dozer. He hooks up and is easily able to pull rig through arroyo and on to the rig
- 11:00 I have pulled outhouse trailer out to sheep lane
- 11:15 Crew has set up grout plant. It is raining hard. I do rig inspection
- 11:28 We leave H's S tailgate
- 11:40 Crew begins mixing grout. I call Viola with an update as to when well might be developed and site conditions. They are aiming for Monday.
- 13:15 150' of 9" out of hole when main cable comes out (13:30 fixed)
- 14:11 Last section of pipe out of hole
- 14:30 Hole is grouted to the surface using 56 bags of pure gold bentonite powder. Crew mixed 2-50 lb bags with ~28 gallons H<sub>2</sub>O per batch producing a mixture that is 30% solids with a weight of 10-10.2 lbs/gallon and is 4.4 cubic feet in volume. As calculators (p48) each foot of annular space is 0.35 ft<sup>3</sup> so to fill 213 feet
- 213 ft / 12.57 linear feet of annulus per 2 bag batch = 34 bags. The hole is likely larger than the 9" diameter used to calculate volume and the results as somewhat permeable under these pressures

10/25/04 (cont)

resulting from the weight of the grout column.

14:45 Crew hook D4 catapillar to the pipe truck and prepares to haul it to the railroad grade section of the road where it may be able to get out on its own power.

15:40 Nate is driving pipe truck to 90 Day yard to drop. Dave is bringing 2<sup>nd</sup> pipe truck out to sheep lane.

6:05 Crew has no water to drop so they will wait till they bring the support vehicle and water truck out tomorrow.

16:15 will leave site

Walt Lutz



Tuesday (10/26/04)

Weather: overcast (~90°)

20-30 mph winds to N

- 8:20 I arrive at D-16. Crew is outside. Slurry in annulus has not sunk overnight so crew takes tension off cable and prepares to tower down. I inspect rig.
- 8:45 We have tailgate H&S
- 9:30 Crew moves rig off plastic and rolls up sheeting. Dave and Tom move support rigs over to fence line. I run to town for fuel.
- 10:05 Meet Carl Cole at sheep lane gate. He is aware and on board with the decision to Drill C-41 west rather than D-14 because D-14 may require the Shramm ODEX system due to shallower bedrock so rather than mob hammer offshore we will drill C-41 first. I head W to site.
- 10:20 Crew was trying to tow the rig with the D-4 cat and they lost air pressure on the rig and the breaks locked up. They are under the hood trying to troubleshoot.
- 11:05 Tom decides he needs chemicals to fix the problem so we take support vehicle to the gate and Dave hauls the compressor out with the D-4. Tom goes to the auto parts store. Nate and I go to 90-Day to Decou. Dave stays with cat to quare out the site.
- 12:50 Nate has pipe truck decouers. Tom and Dave are bringing rig which is fixed.
- 13:30 Rig and support vehicle arrive at 90 Day. Dave decouers these while Tom and Nate go set surface casing. They take boom truck with them to lift the protection.
- 14:45 Dave and I head back to D-16.
- 15:05 Crew loads up all excess gear and trash except some bags of concrete are left at site to complete bollards and pad. We drive all vehicles to Sheep lane. Tom shuttles Dave back to walk the

(10/26/04) cont

cat out. I'll wait to give him a rise to the 90-day. Tom and Nate go to pump the Decon sump into the Baker Tank

15:40 Dave is at Sheep Lv. We head to 90-Day

16:10 Crew is pumping sump. Carl Cole onsite. Because it was decided to change wells to be drilled Blue Stakes was not notified until 3:00pm on Monday so we are not able to begin drilling until 15:00 tomorrow so crew will use the day to complete surface completion at D-16 and set up on C-41. Tom will give me an hour heads up if they intend to drill at 15:00

17:08 Sump is empty. We had pump out truck and drive over to location of C-41. We determine we need to move the hole 15' east so as not to drill on the slope

17:15 Crew leaves site. I go to Building 614 to make copies

18:05 I leave site

Walt Hunt 10/26/04

Wednesday 10/27/04

weather: off site

Because our utility clearance does not activate until 15:00 today I stay at home but am in regular phone contact with crew and Richard & Jeff. Crew will do surface completion of D-16 and alert me if they intend to drill at 15:00.

14:35 Tom calls to say they will be taking D-4 catapillars back to SLC. Viola had hoped it might stay onsite for they are doing development of D-16 on Tuesday and might get water trailer stuck but are not interested in paying standby charges for this insurance. He also is not drilling today. He will move rig's equipment to C-41 so we are ready in the am.

W. H. H. H.  
10/27/04

# FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139.20010</u>		Date: <u>10/15/09</u>																	
SWMU: <u>58</u>		Arrival Time: <u>8:55</u>																	
Team Leader: <u>Richard Ivank</u>		Departure Time / Destination: <u>16:45</u>																	
Team Members: <u>Jeff Bigelow Matt Lucas</u>		Weather: <u>Clear (245°) no wind</u>																	
Purpose: (Attach all appropriate forms) <table border="0"> <tr> <td><input type="checkbox"/> Geophysical Survey</td> <td><input checked="" type="checkbox"/> Well Installation <u>D-16</u></td> </tr> <tr> <td><input type="checkbox"/> Soil Gas Survey</td> <td><input type="checkbox"/> Well Development</td> </tr> <tr> <td><input type="checkbox"/> Hydropunch</td> <td><input type="checkbox"/> Microwell Sampling</td> </tr> <tr> <td><input type="checkbox"/> Test Pit</td> <td><input type="checkbox"/> Monitor Well Sampling</td> </tr> <tr> <td><input type="checkbox"/> GPS</td> <td><input type="checkbox"/> Vertical Boring</td> </tr> <tr> <td><input type="checkbox"/> CPT</td> <td><input type="checkbox"/> Angle Boring</td> </tr> <tr> <td><input type="checkbox"/> Other (specify) _____</td> <td><input type="checkbox"/> Hand Auger</td> </tr> <tr> <td></td> <td><input type="checkbox"/> Surface Soil Sampling</td> </tr> </table>				<input type="checkbox"/> Geophysical Survey	<input checked="" type="checkbox"/> Well Installation <u>D-16</u>	<input type="checkbox"/> Soil Gas Survey	<input type="checkbox"/> Well Development	<input type="checkbox"/> Hydropunch	<input type="checkbox"/> Microwell Sampling	<input type="checkbox"/> Test Pit	<input type="checkbox"/> Monitor Well Sampling	<input type="checkbox"/> GPS	<input type="checkbox"/> Vertical Boring	<input type="checkbox"/> CPT	<input type="checkbox"/> Angle Boring	<input type="checkbox"/> Other (specify) _____	<input type="checkbox"/> Hand Auger		<input type="checkbox"/> Surface Soil Sampling
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<input type="checkbox"/> Other (specify) _____	<input type="checkbox"/> Hand Auger																		
	<input type="checkbox"/> Surface Soil Sampling																		
Protection Level: <input type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A																			
Health and Safety Briefing: Time <u>13:10</u> People Present <u>TK, DK, NS, MI</u>																			
Topics Discussed: <u>Vehicle Safety</u>																			
Logbook Book # <u>B071503</u> Page # <u>53</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology																	
Photos Camera # _____ Roll # _____ Frame # _____																			
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____																			
Closed?: Y / N		Current Location: _____ Update DITF?: Y / N																	
Notes: <u>8:55 arrive at 90 Day to unlock for crew to move</u> <u>drum truck &amp; pipe truck 9:30 Crew digs out rubble to get</u> <u>well protection over D-13 10:30 Mixing concrete to fill</u> <u>borehole to surface and cement w casing 10:50 Take W.L.'s for</u> <u>Richards C-19: 348.51 11:03 C-21: 361.56 12:10 Drum truck</u> <u>and pipe truck @ D-16 Crew is setting rig on plastic</u> <u>12:30 Tom goes to mob compressor 13:30 Crew makes some rig</u> <u>repairs and maintenance 14:04 Begin drilling D-16 16:20 110' bgs</u> <u>16:45 All hands off site</u>																			

# FIELD ACTIVITY REPORT

Project Number/WBS: 744139.20010 Date: 10/18/04  
 SWMU: 58 Arrival Time: 7:05  
 Team Leader: Richard Jurek Departure Time / Destination: 15:00  
 Team Members: Jeff Bigelow, Matt Ivors Weather: overcast (28°) no wind

Purpose: (Attach all appropriate forms)

- ☐ Geophysical Survey
- ☐ Soil Gas Survey
- ☐ Hydropunch
- ☐ Test Pit
- ☐ GPS
- ☐ CPT
- ☐ Other (specify) \_\_\_\_\_

- ☒ Well Installation D-16
- ☐ Well Development \_\_\_\_\_
- ☐ Microwell Sampling \_\_\_\_\_
- ☐ Monitor Well Sampling \_\_\_\_\_
- ☐ Vertical Boring \_\_\_\_\_
- ☐ Angle Boring \_\_\_\_\_
- ☐ Hand Auger \_\_\_\_\_
- ☐ Surface Soil Sampling \_\_\_\_\_

Protection Level: ☒ D ☐ C ☐ B ☐ A

Health and Safety Briefing: Time 9:00 People Present TK, NS, ME

Topics Discussed: Shorthanded crew safety

Logbook Book # B071503  
Page # 54

M/C Parties ☐ TEU Response ☐ Lockheed Monitoring  
 Notified ☐ Range Control/Security (460)  
☐ Pillbox Support ☐ Meteorology

Photos Camera # \_\_\_\_\_ Roll # \_\_\_\_\_ Frame # \_\_\_\_\_

IDW Drums: Purge / Rinse / Soil / Other #ES(s)

Closed?: Y / N

Current Location:

Update DITE?: Y / N

Notes: 7:05 Arrive at 614 7:15 Crew at site 7:50 Arrive at site - crew  
goes for more fuel 8:45 Crew outside - Rig inspection 9:00 H; S tailgate  
9:20 Begin drilling @ 110 9:20 Hammer not working - Fuel pump and  
injection need replacing 11:00 Crew to town 11:55 Crew return  
with parts, begin repairs 13:25 New pump installed but it is  
not working 14:05 Chris Davis outside to troubleshoot 14:45 Unable  
to repair - crew takes both pumps back to layne shop to  
dismantle 15:00 I leave site 16:40 Tom calls to say rig is  
repaired and we will drill in morning

# FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139.20010</u>		Date: <u>10/19/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>6:55</u>			
Team Leader: <u>Richard Jurik</u>		Departure Time / Destination: <u>15:58</u>			
Team Members: <u>Jeff Bigelow, Matt Ivors</u>		Weather: <u>Overcast 35° slight rain</u> <u>no wind</u>			
<b>Purpose:</b> (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey  <input type="checkbox"/> Soil Gas Survey  <input type="checkbox"/> Hydropunch  <input type="checkbox"/> Test Pit  <input type="checkbox"/> GPS  <input type="checkbox"/> CPT  <input type="checkbox"/> Other (specify) _____         </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-16</u>  <input type="checkbox"/> Well Development _____  <input type="checkbox"/> Microwell Sampling  <input type="checkbox"/> Monitor Well Sampling  <input type="checkbox"/> Vertical Boring  <input type="checkbox"/> Angle Boring  <input type="checkbox"/> Hand Auger  <input type="checkbox"/> Surface Soil Sampling         </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-16</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
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Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A					
Health and Safety Briefing: Time <u>8:20</u> People Present <u>TK, N.S., DK, MT</u>					
Topics Discussed: <u>Slip Trip Fall</u>					
Logbook Book # <u>B631503</u> Page # <u>55</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____ Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____					
Closed?: Y / N _____		Current Location: _____			
Update DITE?: Y / N _____					
Notes: <u>6:55 Arrive @ 614 &amp; drop off tools &amp; forms for Jeff B</u> <u>7:15 Jeff at 614 7:25 AT Sheeplane Gate meet crew. They go to D-13</u> <u>for pipe truck and outhouse 8:20 Onsite for H&amp;S 8:35 Rig</u> <u>inspection 8:43 Begin drilling @ 110 9:03 Not running right</u> <u>Crew removes shims from injector 9:37 Drilling again 12:42 218'</u> <u>we encounter water set up containment 14:20 W.L. = 213.4</u> <u>Begin drilling &amp; drumming @ 231 canlock on cycloic breaks</u> <u>we shot down - secure drums 3 toll - PARSN2042930/02:03/04 just</u> <u>a few rocks w 15:45 Crew off site 15:58 I leave site</u>					

# FIELD ACTIVITY REPORT

Project Number/WBS: 744139 20010

Date: 10/20/04

SWMU: 58

Arrival Time: 7:28

Team Leader: Richard Jursk

Departure Time / Destination: \_\_\_\_\_

Team Members: Matt Ivers Jeff Bigelow

Weather: rain (40°) 10-30 mph wind to N

Purpose: (Attach all appropriate forms)

- ☐ Geophysical Survey
- ☐ Soil Gas Survey
- ☐ Hydropunch
- ☐ Test Pit
- ☐ GPS
- ☐ CPT
- ☐ Other (specify) \_\_\_\_\_

- ☒ Well Installation D-16
- ☐ Well Development \_\_\_\_\_
- ☐ Microwell Sampling
- ☐ Monitor Well Sampling
- ☐ Vertical Boring
- ☐ Angle Boring
- ☐ Hand Auger
- ☐ Surface Soil Sampling

Protection Level: ☒ D ☐ C ☐ B ☐ A

Health and Safety Briefing: Time 9:20 People Present TK, DK, NS, MI

Topics Discussed: Water Hazards

Logbook Book # B071503  
Page # 56-57

M/C Parties ☐ TEU Response ☐ Lockheed Monitoring  
Notified ☐ Range Control/Security (460)  
☐ Pillbox Support ☐ Meteorology

Photos Camera # \_\_\_\_\_ Roll # \_\_\_\_\_ Frame # \_\_\_\_\_

IDW Drums: Purge / Rinse / Soil / Other #ES(s)

Closed?: Y / N

Current Location: \_\_\_\_\_

Update DITF?: Y / N

Notes: 7:28 arrive at gate 8:05 arrive at D-16. Do rig inspection 9:15 H's tailgate 9:27 Begin Drilling at 231 10:41 Hole completed to 255 10:50 Mob drums to sheep lane 5 Drums PARS020429301 thru 04 and PARS020429401. 11:50 Chris Davis outside w/ lunch 11:50 Chris Davis says shot down - too wet i wway to build well 12:48 Jeff says standby to move drums to 90-day at 15:00 14:03 Jeff cancels drum move - crew leaves site 15:00 @ 90 day yard Jeff is Pumping Development water off drums and seeks my paperwork - I go to motel to procure 15:50 @ 614 to drop off 16:00 Offsite

# FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139 20010</u>		Date: <u>10/21/04</u>	
SWMU: <u>58</u>		Arrival Time: <u>7:30</u>	
Team Leader: <u>Richard Jurik</u>		Departure Time / Destination: <u>15:20</u>	
Team Members: <u>Jeff Bigelow, Matt Luers</u>		Weather: <u>overcast (~30°) 10 mph winds to NE</u>	

<b>Purpose:</b> (Attach all appropriate forms)	
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-16</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling

Protection Level: ☒ D   ☐ C   ☐ B   ☐ A

Health and Safety Briefing: Time 10:00 People Present TK, DK, NS, MI

Topics Discussed: Wet surface hazards

Logbook Book # <u>13071503</u> Page # <u>58</u>	M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology
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Photos Camera # \_\_\_\_\_ Roll # \_\_\_\_\_ Frame # \_\_\_\_\_

IDW Drums: Purge / Rinse / Soil / Other #ES(s) \_\_\_\_\_

Closed?: Y / N      Current Location: \_\_\_\_\_      Update DITF?: Y / N

Notes: 7:30 Get jump from crew at Motel 8:10 Arrive at Sheep lane  
to pickup 5 Drums (PARSNZ0429301 thru 04 and PARSNZ0429401) w/ Larry  
Mc. and Dean Reynolds 9:25 Drums secured in 90-Day year Manifest #4012  
9:49 Arrive at D-16. Do rig inspection 10:00 HFS tailgate 10:15 210.4  
Screen well 250-230' bgs. 11:10 250' in borehole begin adding sand pack  
12:30 25-50 lb bags bring top of sand to 220.9 12:50 4-50 lb 5 gallon buckets of  
bentonite pellets bring top of seal to 213.2' bgs 13:50 Filling 2 trucks water at  
WW3 14:20 One water truck is stuck 15:20 I leave while crew works to  
unstick rig



# FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139.20010</u>		Date: <u>10/26/04</u>																	
SWMU: <u>58</u>		Arrival Time: <u>8:20</u>																	
Team Leader: <u>Richard Jurik</u>		Departure Time / Destination: <u>18:05</u>																	
Team Members: <u>Jeff Bigelow, Matt Ivers</u>		Weather: <u>overcast (40°) 20-30 mph to N</u>																	
<b>Purpose:</b> (Attach all appropriate forms) <table border="0"> <tr> <td><input type="checkbox"/> Geophysical Survey</td> <td><input checked="" type="checkbox"/> Well Installation <u>D-16</u></td> </tr> <tr> <td><input type="checkbox"/> Soil Gas Survey</td> <td><input type="checkbox"/> Well Development</td> </tr> <tr> <td><input type="checkbox"/> Hydropunch</td> <td><input type="checkbox"/> Microwell Sampling</td> </tr> <tr> <td><input type="checkbox"/> Test Pit</td> <td><input type="checkbox"/> Monitor Well Sampling</td> </tr> <tr> <td><input type="checkbox"/> GPS</td> <td><input type="checkbox"/> Vertical Boring</td> </tr> <tr> <td><input type="checkbox"/> CPT</td> <td><input type="checkbox"/> Angle Boring</td> </tr> <tr> <td><input type="checkbox"/> Other (specify) _____</td> <td><input type="checkbox"/> Hand Auger</td> </tr> <tr> <td></td> <td><input type="checkbox"/> Surface Soil Sampling</td> </tr> </table>				<input type="checkbox"/> Geophysical Survey	<input checked="" type="checkbox"/> Well Installation <u>D-16</u>	<input type="checkbox"/> Soil Gas Survey	<input type="checkbox"/> Well Development	<input type="checkbox"/> Hydropunch	<input type="checkbox"/> Microwell Sampling	<input type="checkbox"/> Test Pit	<input type="checkbox"/> Monitor Well Sampling	<input type="checkbox"/> GPS	<input type="checkbox"/> Vertical Boring	<input type="checkbox"/> CPT	<input type="checkbox"/> Angle Boring	<input type="checkbox"/> Other (specify) _____	<input type="checkbox"/> Hand Auger		<input type="checkbox"/> Surface Soil Sampling
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	<input type="checkbox"/> Surface Soil Sampling																		
Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A																			
Health and Safety Briefing: Time <u>8:45</u> People Present <u>TK, DK, NS, MI</u>																			
Topics Discussed: <u>D-4 catpillar hazards</u>																			
Logbook Book # <u>B071503</u> Page # <u>63</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology																	
Photos Camera # _____ Roll # _____ Frame # _____																			
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____																			
Closed?: Y / N		Current Location: _____ Update DITF?: Y / N																	
Notes: <u>8:20 Arrive at D-16 Crew towers down, slurry did not</u> <u>sink overnight I do rig inspection 8:45 H's tailgate 9:20 Try</u> <u>to mob to sheep lane with help of bulldozer 12:50 Nate begins</u> <u>decon while crew works on mob. 13:30 Rig at 90 deg. Dave</u> <u>takes over decon. Tom &amp; Nate go to set surface casing</u> <u>15:05 Final site cleanup Dave walks cat out. 16:10 Pumping</u> <u>decon water into sump. 17:15 Crew leaves site 18:05</u> <u>I leave building 614</u>																			

# FIELD ACTIVITY REPORT

Project Number/WBS: <u>744134 20010</u>		Date: <u>11-01-04</u>	
SWMU: <u>58 / D-16</u>		Arrival Time: <u>08:00</u>	
Team Leader: <u>J. Bigelow</u>		Departure Time / Destination: <u>16:00</u>	
Team Members: <u>J. Herman, T. Fetzer</u>		Weather: <u>Sunny 20-45°F</u>	

<b>Purpose:</b> (Attach all appropriate forms)	
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input type="checkbox"/> Well Installation <input checked="" type="checkbox"/> Well Development <u>D-16</u> <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling

<b>Protection Level:</b> <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A
<b>Health and Safety Briefing:</b> Time <u>09:00</u> People Present <u>See above</u>
<b>Topics Discussed:</b> _____

<b>Logbook</b> Book # <u>1</u> Page # <u>38-39</u>	<b>M/C Parties</b> <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring <b>Notified</b> <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology
---	---

<b>Photos</b> Camera # _____ Roll # _____ Frame # _____
---

<b>IDW Drums:</b> <u>Purge</u> / Rinse / Soil / Other #ES(s) <u>PARSN20436001 (MP Tanker)</u> Closed?: Y/ <u>N</u> Current Location: <u>On-site</u> Update DITE?: Y/ <u>N</u>
<b>Notes:</b> <u>07:00 Arrive at field trailer, prep for well development</u> <u>07:45 Meet MP at gate, park tanker inside gate</u> <u>08:00 Vehicle arrives + we move to D-16, Vehicle has to bring 4x4 truck back to shop 10:00 Start drilling, bailed 105 gallons</u> <u>13:43 Started pumping 15:51 Had to stop pumping because we filled poly tank, pumped additional 810 gallons</u> <u>17:00 Start moving water to tanker by road</u> <u>18:15 Complete pumping water into tanker, locked up tanker and left site, will finish development tomorrow</u>

# FIELD ACTIVITY REPORT

Project Number/WBS: \_\_\_\_\_ Date: 11 / 02 / 2004  
 SWMU: S8 TEAP 9 P-16 Arrival Time: 0730  
 Team Leader: JEFF HARMANN Departure Time / Destination: \_\_\_\_\_  
 Team Members: TERRY FETZER Weather: CLEAR / COLD

Purpose: (Attach all appropriate forms)

- ☐ Geophysical Survey  
☐ Soil Gas Survey  
☐ Hydropunch  
☐ Test Pit  
☐ GPS  
☐ CPT  
☐ Other (specify) \_\_\_\_\_

- ☐ Well Installation  
☒ Well Development D-16  
☐ Microwell Sampling  
☐ Monitor Well Sampling  
☐ Vertical Boring  
☐ Angle Boring  
☐ Hand Auger  
☐ Surface Soil Sampling

Protection Level: ☒ D ☐ C ☐ B ☐ A

Health and Safety Briefing: Time 0740 People Present K. ALIQUAN  
J. HARMANN  
T. FETZER

Topics Discussed: STF / Pinch Points / ENHANCED EQ

Logbook Book # 1  
 Page # 34

M/C Parties ☐ TEU Response ☐ Lockheed Monitoring  
 Notified ☐ Range Control/Security (460)  
☐ Pillbox Support ☐ Meteorology

Photos Camera # \_\_\_\_\_ Roll # \_\_\_\_\_ Frame # \_\_\_\_\_

IDW Drums: (Purge) Rinse / Soil / Other #ES(s) PARSN20426801 (Baker Tank)

Closed?: ☒ Y / ☐ N Current Location: 4ED 90 - clay yr Update DITE?: ☒ Y / ☐ N

Notes: 0730 ARRIVE GAGE - 0740 LHS MTC AT SITE -  
CALIBRATION INSTRUMENTS -  
0814 START PUMPING

0845

TIME	RATE	NOL	TAMP	PH	COND	TURB	COMMENT
------	------	-----	------	----	------	------	---------

0825	9.04	891	12.9	7.59	1889	7.06	CLEAR
------	------	-----	------	------	------	------	-------

0834	9.66	972	12.8	7.62	1898	1.24	"
------	------	-----	------	------	------	------	---

0843	9.16	1053	13.1	7.67	1881	.66	CLEAR
------	------	------	------	------	------	-----	-------

0852	9.04	1134	12.9	7.72	1878	.65	CLEAR
------	------	------	------	------	------	-----	-------

0853	SHUT DOWN PUMP WELL DEVELOPMENT COMPLETE.						
------	---	--	--	--	--	--	--

11:30 - Pumped water into MIP Tanker 13:30 - Pumped water into  
Baker Tank at 90 - clay yr

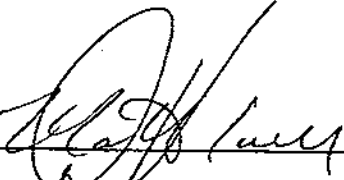
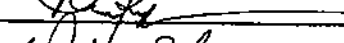
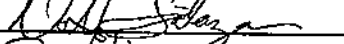

## HEALTH AND SAFETY BRIEFING

Date: 10 / 15 / 04

Time: 13:10

Site Health and Safety Officers(s)

### ATTENDEES SIGNATURE

1. 	11.
2. 	12.
3. 	13.
4. 	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

### AGENDA

1. Drive vehicles slowly to D-16 to avoid
2. unnecessary wear and tear on possible breakdown
3. Road is rough. Be aware of other crew members
4. whereabouts when back up vehicles
5. Wear your seatbelts and use blinkers
- 6.
- 7.
- 8.
- 9.

**NOTE:** Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

## HEALTH AND SAFETY BRIEFING

Date: 10 / 18 / 04

Time: \_\_\_\_\_

Site Health and Safety Officers(s)

### ATTENDEES SIGNATURE

1. <u>Mathew</u>	11.
2. <u>Touche</u>	12.
3. <u>Mathew Salazar</u>	13.
4.	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

### AGENDA

1. With only two man drill crew today you may
2. be tempted to rush from one task to another
3. but in the name of safety, move with
4. caution and certainty and don't try to do too
5. much.
- 6.
- 7.
- 8.
- 9.

**NOTE:** Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

## HEALTH AND SAFETY BRIEFING

Date: 10 / 19 / 04

Time: 8:20

Site Health and Safety Officers(s)

### ATTENDEES SIGNATURE

1. <u>[Signature]</u>	11.
2. <u>[Signature]</u>	12.
3. <u>Tony Ken</u>	13.
4. <u>Nathan Salazar</u>	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

### AGENDA

1. Overide rain has left site wet. Be cautious
2. when performing work activities to avoid slipping
3. and falling
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.

**NOTE:** Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

## HEALTH AND SAFETY BRIEFING

Date: 10 / 20 / 04

Time: 9:20

Site Health and Safety Officers(s)

### ATTENDEES SIGNATURE

1. <u>[Signature]</u>	11.
2. <u>[Signature]</u>	12.
3. <u>[Signature]</u>	13.
4. <u>[Signature]</u>	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

### AGENDA

1. Extreme weather conditions make for
2. extremely poor footing. Move very carefully
3. around the work place
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.

**NOTE:** Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

## HEALTH AND SAFETY BRIEFING

Date: 10 / 21 / 04

Time: 10:00

Site Health and Safety Officers(s)

### ATTENDEES SIGNATURE

1. <i>[Signature]</i>	11.
2. <i>[Signature]</i>	12.
3. <i>[Signature]</i>	13.
4. <i>[Signature]</i>	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

### AGENDA

1. Site is very muddy from yesterdays deluge.
2. Be carefull carrying sand bags and berlovide
3. buckets and climbing around rig & pipe truck
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.

**NOTE:** Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.



## HEALTH AND SAFETY BRIEFING

Date: 10/25/04

Time: 11:28

Site Health and Safety Officers(s)

### ATTENDEES SIGNATURE

1. <u>[Signature]</u>	11.
2. <u>[Signature]</u>	12.
3. <u>[Signature]</u>	13.
4. <u>[Signature]</u>	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

### AGENDA

1. Always wear a harness and tie off to a
2. safety cable when climbing more than
3. 6 feet above the ground surface on the
4. Drill rig
- 5.
- 6.
- 7.
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

## HEALTH AND SAFETY BRIEFING

Date: 10 / 26 / 04

Time: 8:45

Site Health and Safety Officers(s)

### ATTENDEES SIGNATURE

1. <i>[Signature]</i>	11.
2. <i>[Signature]</i>	12.
3. <i>[Signature]</i>	13.
4. <i>Tom Ke</i>	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

### AGENDA

1. We are using a D-4 catapiller to pull rigs off site
2. thru the mud today. Stay clear of cable or chain
3. incase of failure. Drive with care and stay
4. on roads and avoid excessive speeds in the mud. OK!
- 5.
- 6.
- 7.
- 8.
- 9.

**NOTE:** Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

## HEALTH AND SAFETY BRIEFING

Date: 11/1/04

Time: 09:00

Site Health and Safety Officers(s)

### ATTENDEES SIGNATURE

WELL DEVELOPMENT  
OF 3-16

1. <i>[Signature]</i>	11.
2. <i>[Signature]</i>	12.
3. <i>[Signature]</i>	13.
4.	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

### AGENDA

1. Ground may be slippery
2. watch pinch points for hands
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.

**NOTE:** Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

# HEALTH AND SAFETY BRIEFING



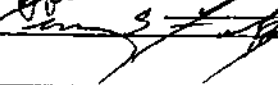
D-14

Date: 11 / 2 / 04

Time: 0740

Site Health and Safety Officers(s) Steve - K. Allaway Parsons

## ATTENDEES SIGNATURE

1. 	11.
2. 	12. JEFF HANNMANN
3. 	13. TERRY FETZER
4.	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

## AGENDA

1. CONTINUE WITH WALL DEVELOPMENT ACTIVITIES AT
2.
3. SAFETY TOPICS:
4. SWP / TRIP / FALL
5. PINCH POINTS
6. ENERGIZED EQUIPMENT
7.
8.
9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

## Layne Christensen Company Job Site Safety

D-16

Date 10/15/04

Site: Tead Phase II RFI @ SWMO 58

Client: USACE

Rig/Crew: Tom Kern, Nate Salazar, Dave Kyle

Observers: Matt Wers

## Crew Safety/PPE

	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt / harness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Decoupled Rig and Pipe Trucks yesterday and greased and lubed Drilling

## Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (ICA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

## Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Layne Christensen Company Job Site Safety

D-16

Date 10/18/04

Site: TEAD Phase II RFI @ SWOLUS8

Client: USACB

Rig/Crew: Tom Kew Nate Salazar

Observers: Matt Weiss

Crew Safety/PPE	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt Harness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Replaced fuel pump and injector on head ✓

## Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (ICA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

## Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Layne Christensen Company Job Site Safety

D-16

Date 10/19/04

Site: TEAD Phase II RFI

Client: USACE

Rig/Crew: Tom Kerv, Nate Salazar

Observers: Matt Ivers

## Crew Safety/PPE

	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt / Harness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

A third fuel pump has been installed in head last note.

## Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

## Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Layne Christensen Company Job Site Safety

D-16

Date 10/20/04

Site: TEAD Phase II RFI

Client: USACE

Rig/Crew: Tom Kern, Nate Salazar, Dave Kyle

Observers: Matt Ivers

## Crew Safety/PPE

YES NO N/A

YES NO N/A

Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Heavy Rains have made all surfaces very slick - urges extreme caution while climbing on rigs ✓

## Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (ICA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

## Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## Layne Christensen Company Job Site Safety

D-16

Date 10/21/04

Site: TEAD Phase II RFI @ SAMO 58

Client: USACE

Rig/Crew: Tom Kern, Nate Salazar, Dave Kyle

Observers: Matt Wors

## Crew Safety/PPE

	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt / Harness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

## Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

## Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Layne Christensen Company Job Site Safety

D-16

Date 10/25/04

Site: TEAD Phase II RFI @ SWMU 58

Client: USACE

Rig/Crew: Tom Kern, Mike Salazar, Dave Kyle, Matt I.

Observers: Matt Lucas

Crew Safety/PPE	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt / Harness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments: Main cable became unsecured from spool and was reattached during grouting ✓

## Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

## Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Layne Christensen Company Job Site Safety

D-16

Date 10/26/04

Site: TEAD Phase II RFI

Client: USACE

Rig/Crew: Tom Kern, Nate Salazar, Dave Kyle

Observers: Matt Ivers

## Crew Safety/PPE

	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt Harness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Using a D-4 catapillar to pull rig out thru mud  
so I do rig inspection on this vehicle

## Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

## Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Layne Christensen Company Job Site Safety

D-16

Date 11-1-04

Site: D-16

Client: TEAP-USACE

Rig/Crew: Veolia Water Services

Observers:

## Crew Safety/PPE

	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DOT physical card, COL and logbooks present and up to date?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

## Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chemicals stored away from fuel and protected?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

## Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Seat belts available and used on all equipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Layne Christensen Company Job Site Safety

D-16

Date 11-2-04

Site: Offsite well D-16

Client: TEAD

Rig/Crew: Vedra Water Services

Observers: J. Brye/br

## Crew Safety/PPE

YES NO N/A

YES NO N/A

Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

## Site Set-up and Safety

Hole openings covered or tied off?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Timbers and set-up jacks stable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chemicals stored away from fuel and protected?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

## Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Seat belts available and used on all equipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# EQUIPMENT CALIBRATION LOG

## Tooele Army Depot

Eqpt. Type	Serial No.	Date	Calibration Time	Calibration Gas	Calibration Gas Lot No.	Calibrated By:	Comments
Environmental Instruments	580U-60884 329	9/15/04	10:00	100 PPM ISOBUTYLENE	903169	Matt Ivers	101.6 ppm D-12
Photo Ionization		9/16/04	9:45				102.2 "
Detector		10/7/04	11:50				99.2 D-13
580 B		"	13:40				97.8 "
		10/11/04	8:00				97.6 "
		10/19/04	12:05				103.4 D-16
		10/20/04	8:35				101.2 "
		11/1/04	8:05				96.7 C-41
		11/2/04	12:55				97.6 "
		11/11/04	7:45				103.4 C-42
		11/19/04	9:25				104.3 C-44
		11/22/04	9:10				104.8 "
		12/7/04	12:45				101.2 C-43
		12/30/04	7:55				103.4 D-14
		1/4/05	8:50				104.2 "
		1/5/05	9:35				102.6 "
		1/6/05	11:25				103.4 "

Attachment 7-1









































## **APPENDIX C**

DRILLING LOG	DIVISION Sacramento	INSTALLATION Tooele Army Depot (TEAD)	SHEET 1 OF 7 SHEETS
1. PROJECT TEAD Phase II RFI @ SWMU 58		10. SIZE AND TYPE OF BIT 9" open face	
2. LOCATION (Coordinates or Station) 7377300.289 N 1409139.940 E		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
3. DRILLING AGENCY Layne Geo construction		12. MANUFACTURER'S DESIGNATION OF DRILL AP1000 Becker Hammer-Drill Systems	
4. HOLE NO. (As shown on drawing title and file number) D-16		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 52
5. NAME OF DRILLER Tom Kern		UNDISTURBED 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		14. TOTAL NUMBER CORE BOXES —	
7. THICKNESS OF OVERBURDEN 255 ft bgs		15. ELEVATION GROUND WATER 4366.106	
8. DEPTH DRILLED INTO ROCK 0		16. DATE HOLE	STARTED 10/15/04
9. TOTAL DEPTH OF HOLE 255 ft bgs		COMPLETED 10/26/04	
		17. ELEVATION TOP OF HOLE 4580.106 feet	
		18. TOTAL CORE RECOVERY FOR BORING —	
		19. SIGNATURE OF INSPECTOR <i>W. J. Kern</i> (G50949)	

TIME	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
14:04	2		- Gravelly Silt (ML) 40% Cobble & Gravel Cobble to 6", silt has low plasticity, light brown 7.5 YR 6/4 Dry	X	1	The Becker Hammer Drilling method allows a maximum clast SIZE OF 6" to be Delivered to the surface so the existence or quantity of boulders or cobble above 6" in Diameter cannot be determined
	4			X	2	
	6		- Moist	X		
	8			X		
14:10	10			X	3	0.6 min/ft
14:27	12		- increase in fine gravel or coarse sand to 20%	X		- crew is making repair to fuel line on hoars
	14		(Clasts are chiefly grey limestones or dolomites or tan to yellow-brown quartzite with minor amounts of sandstone and pyroclastic volcanics in various shades of red and green)	X	4	
	16		- clasts are round to sub angular and water worn unless otherwise noted	X		
14:36	18		- Poorly Graded Sand and Gravel (Sp) 60%	X	5	0.9 min/ft
14:39	20		coarse sand 30% cobble 10% fines, slight plasticity brown 7.5 YR 5/2, moist	X		
	22			X	6	
	24			X		
	26			X		
	28			X		
14:52	30			X		1.3 min/ft



TIME	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVERY	SAMPLE NO.	REMARKS
14:55	32		Poorly Graded Gravel (GP) with sand 70-80% Cobble and Gravel to 5" 20% coarse to med sand sub round to subangular brown 7.5 PR 5/2 med		7	
	34				8	
15:01 15:04	40				9	0.6 min/ft
	42					
	44				10	
	46					
	48					
15:14 15:17	50				11	1.0 min/ft
	52					
	54		increase in silty fine sand to 30-40% light brown 7.5 PR 6/4 dry		12	
	56					
	58					
15:23 15:28	60		(GP) as # 7		13	0.6 min/ft
	62					
	64					
	66				14	
	68					
15:37	70					0.9 min/ft

TIME	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVER	SAMPLE NO.	REMARKS
15:40	72				15	
	74				16	
	76					
	78					
15:46	80				17	0.6 min/ft
15:48	82					
	84					
	86				18	
	88					
15:55	90				19	0.7 min/ft
15:58	92					
	94					
	96				20	
	98					
16:04	100				21	0.6 min/ft
16:06	102					
	104					
	106				22	
	108					
16:20	110					1.4 min/ft

- Thin cemented layer

Poorly Graded Gravel with silty fine sand (GP) 70% Cobble & Gravel to 6", 30% silt and very fine sand light brown 7.5 YR 6/4 Dry

TIME	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVER- ERY	SAMPLE NO.	REMARKS
10/18/04 @ 9:10 10/19/04 @ 8:43	112		Silty Sand (SM) low plasticity fine grain, trace cobble reddish brown 2.5 YR 5/4 Dry		23	Down to replace fuel pump and injector
	114				24	
	116		Silty Gravel (GM) 20% Cobble to 4", 60% gravel 20% silt to silty fine sand			
	118		light grey 10 YR 7/1, Dry some weak cemented layers, caliche skin on many clasts		25	2.0 min/ft - still having hammer fuel pump trouble - injector skins removed
9:03 9:37	120					
	122					
	124				26	
	126					
	128					
9:58 10:02	130		- as above with cobble Max size increasing to 8"		27	2.1 min/ft
	132					
	134					
	136		Poorly Graded Gravel with Sand (GP) 20% cobble to 6", 50% gravel 30% fine to med sand Brown 7.5 YR 5/2, Dry		28	
	138					
10:11 10:13	140				29	0.9 min/ft
	142					
	144					
	146				30	
	148		Thin-gravelly clay layer			
10:28	150		Silty Gravel (GM) as #24 above			1.5 min/ft

PROJECT TEAD Phase II RFI		HOLE NO. D-16	SIGNATURE OF INSPECTOR <i>[Signature]</i>	DATE 10/19/04	5077	
TIME	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVERY	SAMPLE NO.	REMARKS
10:31	152		Silty Gravel (GM) as #24	X	31	
	154			X	32	
	156		Poorly graded gravel and Sand (GP) as #28	X		
10:43 10:48	160			X	33	1.2 min/ft
	162					
	164					
	166			X	34	
	168		- Thin cemented zone			
11:07 11:10	170		- increase in sand to 30%	X	35	1.9 min/ft
	172					
	174					
	176			X	36	
	178					
11:18 11:22	180			X	37	0.8 min/ft
	182					
	184		- Grey limestone boulder			
	186		Silty Gravel (GM) as #24	X	38	
	188					
11:40	190					1.8 min/ft

PROJECT		HOLE NO.		SIGNATURE OF INSPECTOR		DATE	
TEAD Phase II RFI @ SWMU 58		D-16		<i>[Signature]</i>		10/19/04	
TIME	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVERY	SAMPLE NO.	REMARKS	
11:43	192		Silty Gravel (GM) 10% cobble to 8", 60% gravel 20% silt, 10% sand light brown 7.5 YR 6/4 to light grey 10 YR 7/1, Dry		39		
	194						
	196						
	198						
	200						
11:58 12:02	202		- limestone & quartzite cobble & boulders		41	1.5 min/ft	
	204						
	206						
	208						
	210						
12:16 12:29	212		- Poorly Graded Gravel with sand (GP) 10-20% cobble to 6", 50-70% gravel 20-30% med to fine sand with some silt sub angular to sub round multicolored, wet		43	1.4 min/ft	
	214						
	216						
	218						
	220						
12:42 14:39	222				45	1.3 min/ft	
	224						
	226						
	228						
	230						
14:55					46	1.6 min/ft	

Water Level 213.4  
on 10/19/04 @ 14:20

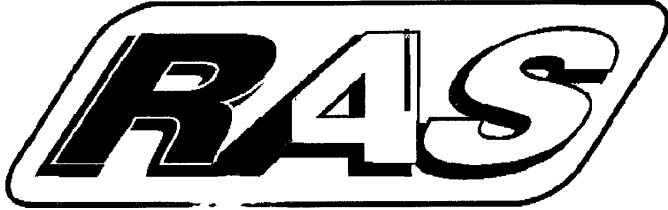
Water first encountered

PID (PPM)

1.6

0.8

PROJECT		HOLE NO.		SIGNATURE OF INSPECTOR		DATE	
TEAD Phase II RFI @ SWMU 58		D-16		<i>Walt/um</i>		10/19/04	7 of 7
TIME	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVERY	SAMPLE NO.	REMARKS	PID ppm
15:07 15:36 9:27 on 10/20/04	232		Poorly Graded Gravel with Sand (GP) 80% cobble to 4", 60% gravel, 20% med to coarse sand, all clasts subround to subangular multicolored, wet	X	47	CLAMLOCK on Hose to cyclone breaks	1.2
	234						
	236		Poorly Graded Gravel (GP) 30% cobble to 8", 60% gravel, 10% sand, SRMSH multicolored, wet	X	48		2.3
	238						
9:42 9:48	240			X	49	1.5 min/ft	1.6
	242						
	244						
	246		increase cobble to 40%, no sand	X	50		2.2
	248						
10:05 10:32	250			X	51	1.7 min/ft	0.8
	252		Gravelly Clay (CL) Very high plasticity ~20% fine gravel Dark reddish brown 2.5 YR 3/4, wet	X	52	1.8 min/ft	1.4
10:41	254						
	256	EOH	moderately strong cementation				



**Integrated Subsurface Evaluation**

**311 Rock Avenue • Golden, CO 80401  
PH 303.526.4432 • FAX 303.526.4426**

**email: PedlerRAS@aol.com • www.rasinc.org**

**D-16**

COMPANY : US AEC  
WELL : D-16  
LOCATION/FIELD : TEAD  
COUNTY : TOOELE  
STATE : UTAH  
SECTION :

OTHER SERVICES:

TOWNSHIP :

RANGE :

DATE : 12/07/04  
DEPTH DRILLER :  
LOG BOTTOM : 249.10  
LOG TOP : 3.20

PERMANENT DATUM : TOSC  
LOG MEASURED FROM: TOSC  
DRL MEASURED FROM: NA

KB : NA  
DF :  
GL : na

CASING DIAMETER : 0  
CASING TYPE : PVC  
CASING THICKNESS: 0

LOGGING UNIT : 202  
FIELD OFFICE :  
RECORDED BY : whp

BIT SIZE : 6  
MAGNETIC DECL. : 0  
MATRIX DENSITY : 2.71  
NEUTRON MATRIX : Dolomite

BOREHOLE FLUID : 0  
RM : 0  
RM TEMPERATURE : 0  
MATRIX DELTA T : 140

FILE : PROCESSED  
TYPE : 9512A

THRESH: 4000

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS



Date:09/23/2005  
Project Number 48743.1B

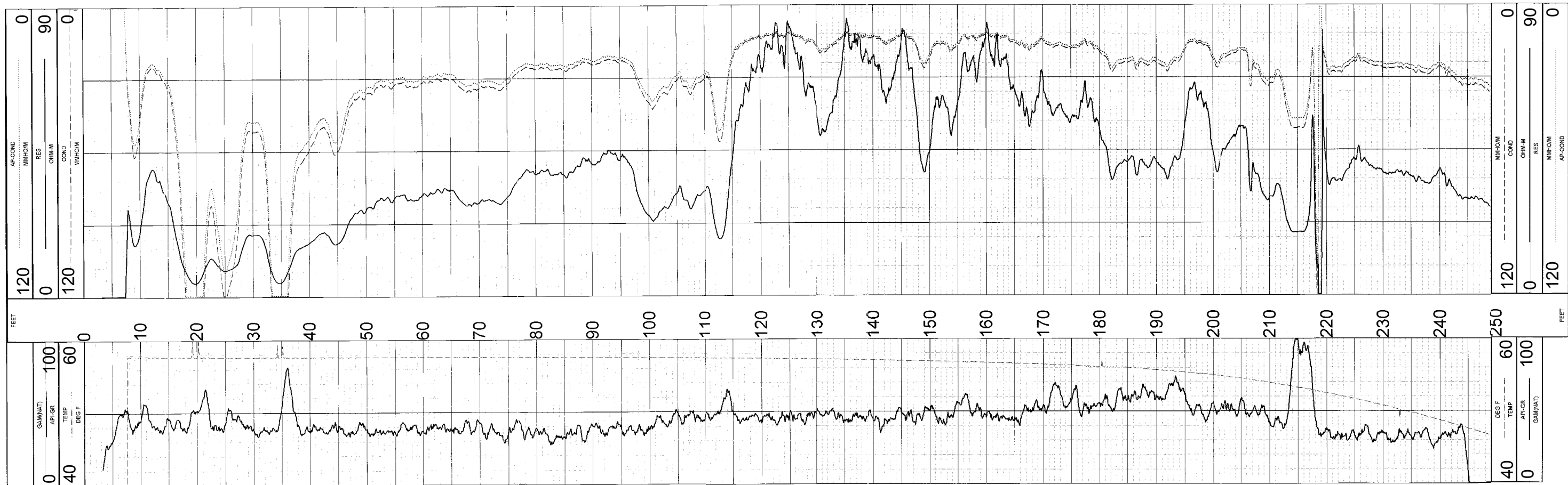
TEAD Phase II RFI

**WELL D-16  
NATURAL GAMMA AND  
INDUCTION ELECTRICAL LOGS**

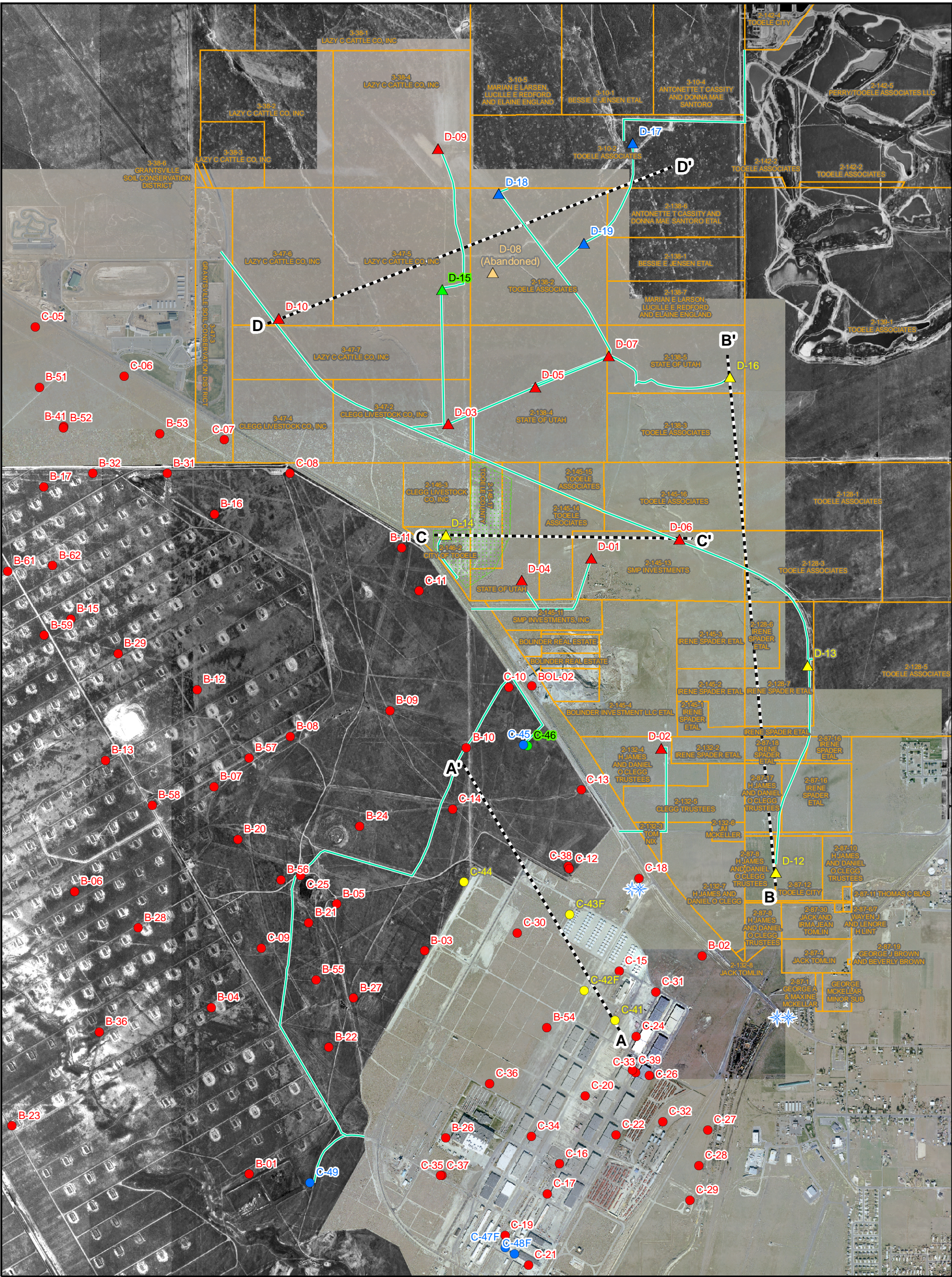
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PLATE

**C-2a**







Offsite Groundwater Monitoring Wells

▲ Phase I RFI Well

▲ Phase I RFI Well - Abandoned

▲ Phase II RFI - Installed Fall-Winter 2004

▲ Phase III RFI - Installed Summer 2005

▲ Proposed Phase II RFI Well

TEAD/UID Groundwater Monitoring Wells

● Existing Well

● Phase II RFI Well - Installed Fall-Winter 2004

● Phase II RFI Well - Installed Summer-Fall 2005

● Proposed Phase II RFI Well

LEGEND

★ Survey Benchmark

— Approximate Phase II RFI Well Access Route

----- Cross Section Line

Former Landfill

Parcel Boundaries / Owners

SWMU 58  
PHASE II RFI  
TOOELE ARMY DEPOT  
TOOELE, UTAH

0 900 1,800

Feet

↑

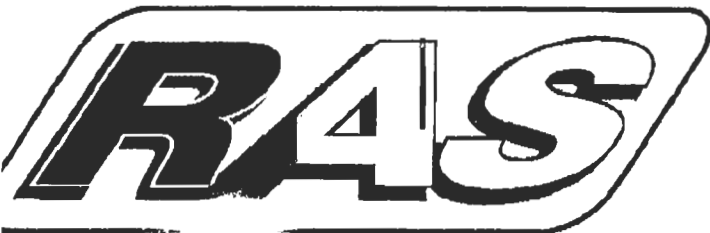
PLATE C-3

GROUNDWATER  
MONITORING WELL  
LOCATION MAP

w:\tooele\maps\well\_comp\_report\_sept2005\gw\_mon\_wells.mxd 12/02/05

PARSONS





311 Rock Avenue • Golden, CO 80401  
PH 303.526.4432 • FAX 303.526.4426

**Integrated Subsurface Evaluation** email: [PedlerRAS@aol.com](mailto:PedlerRAS@aol.com) • [www.rasinc.org](http://www.rasinc.org)  
D-16

COMPANY	: US AEC	<div>OTHER SERVICES:</div>			
WELL	: D-16				
LOCATION/FIELD	: TEAD				
COUNTY	: TOOELE				
STATE	: UTAH				
SECTION	:	TOWNSHIP	:	RANGE	:
DATE	: 12/07/04	PERMANENT DATUM	: TOSC		
DEPTH DRILLER	:			KB	: NA
LOG BOTTOM	: 249.10	LOG MEASURED FROM:	TOSC	DF	:
LOG TOP	: 3.20	DRL MEASURED FROM:	NA	GL	: na
LOGGING DIAMETER	: 0	LOGGING UNIT	: 202		
LOGGING TYPE	: PVC	FIELD OFFICE	:		
LOGGING THICKNESS:	0	RECORDED BY	: whp		
LOG SIZE	: 6	BOREHOLE FLUID	: 0	FILE	: PROCESSED
MAGNETIC DECL.	: 0	RM	: 0	TYPE	: 9512A
MATRIX DENSITY	: 2.71	RM TEMPERATURE	: 0		
NEUTRON MATRIX	: Dolomite	MATRIX DELTA T	: 140		

THRESH: 4000

ADDITION OF BOREHOLE GEOLOGY (FROM MATT IVOR'S GEOLOGIC BORING LOG)  
AND INTERPRETATION OF GAMMA AND ~~INDUCTION~~ INDUCTION ELECTRIC LOGS BY  
R. JIRIK AND ERIC SAHM OF PARSONS

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS

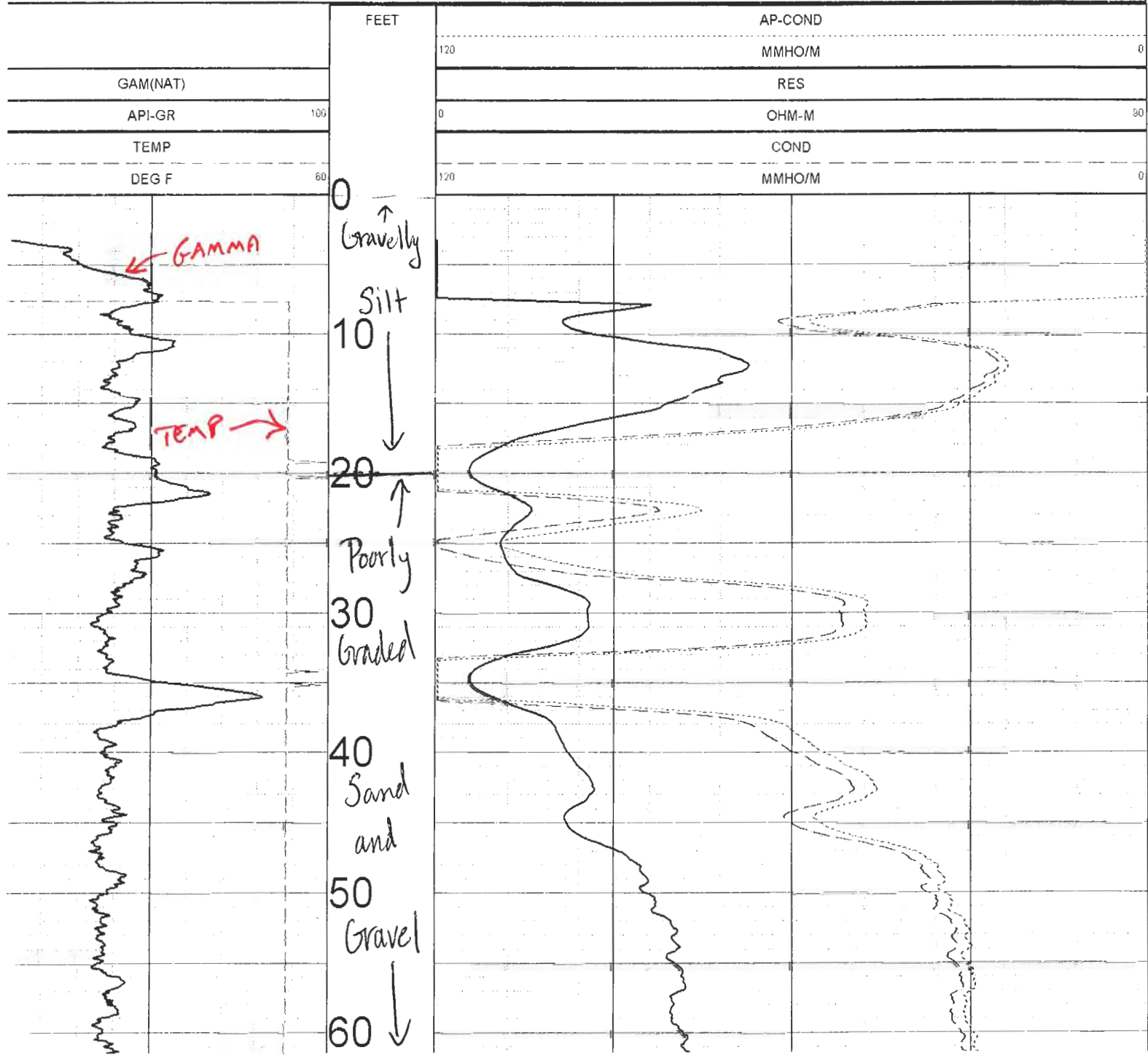
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		120 MMHO/M 0
GAM(NAT)		RES
API-GR 100	0	OHM-M 90
TEMP		COND
RES	120	

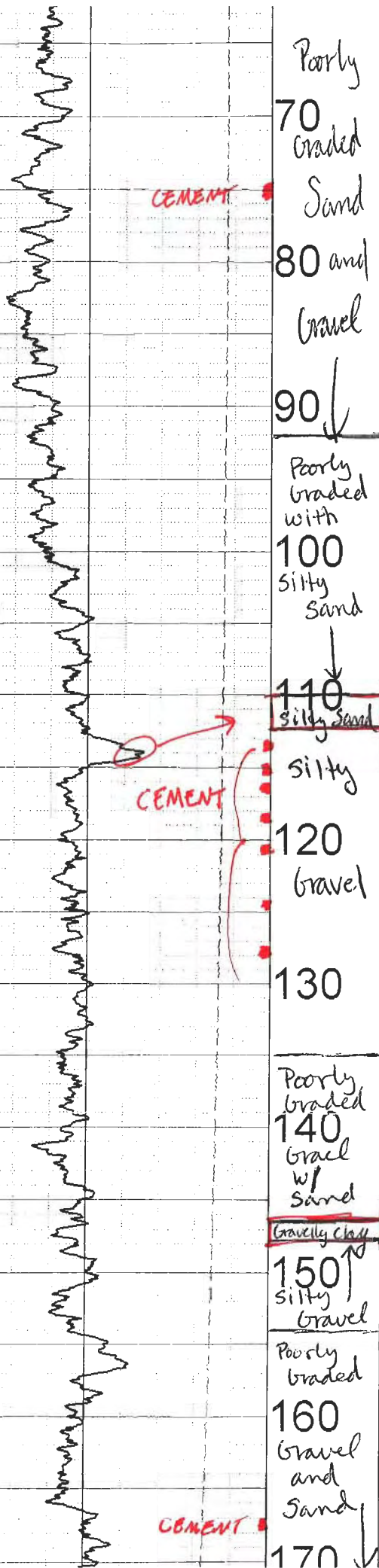
LOG BOTTOM : 249.10  
LOG TOP : 3.20  
LOGGING DIAMETER : 0  
LOGGING TYPE : PVC  
LOGGING THICKNESS: 0  
LOG SIZE : 6  
MAGNETIC DECL. : 0  
MATRIX DENSITY : 2.71  
NEUTRON MATRIX : Dolomite

LOG MEASURED FROM: TOSC  
DRL MEASURED FROM: NA  
LOGGING UNIT : 202  
FIELD OFFICE :  
RECORDED BY : whp  
BOREHOLE FLUID : 0  
RM : 0  
RM TEMPERATURE : 0  
MATRIX DELTA T : 140

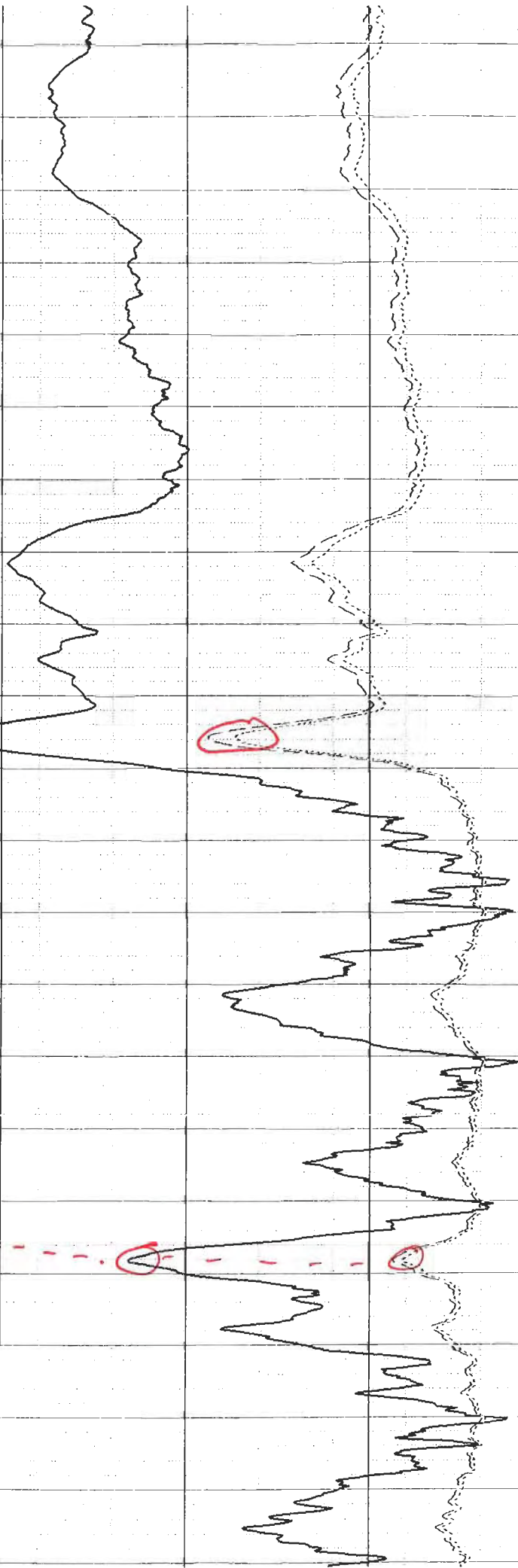
DF :  
GL : na  
FILE : PROCESSED  
TYPE : 9512A  
THRESH: 4000

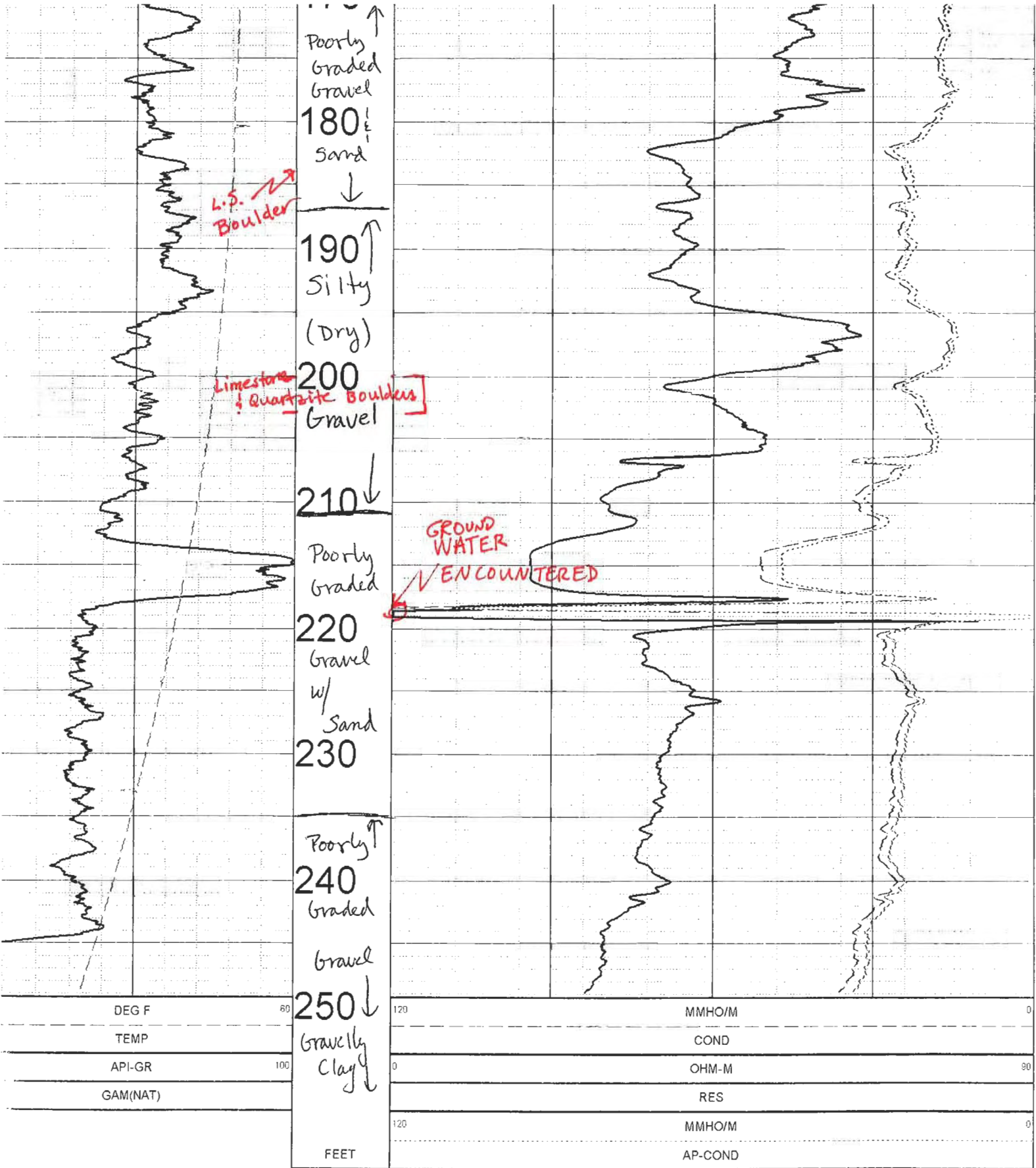
ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS





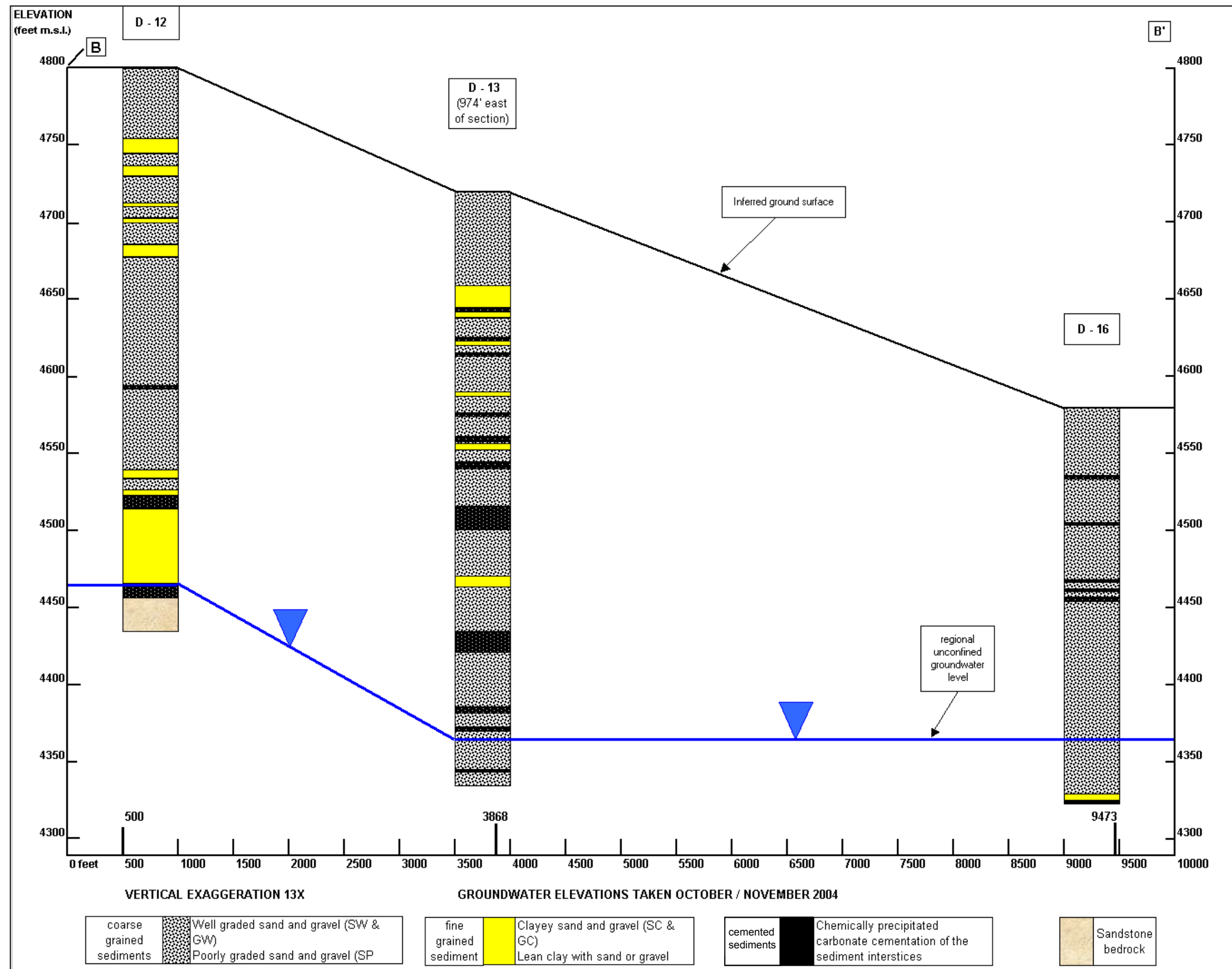
Poorly  
graded  
Sand  
and  
Gravel  
Poorly  
graded  
with  
Silty  
Sand  
Silty  
Gravel  
Gravel  
w/  
Sand  
Silty  
Gravel  
Poorly  
graded  
Gravel  
and  
Sand





TOOL CALIBRATION D-16 12/07/04 11:31  
TOOL 9512A  
SERIAL NUMBER 993

DATE	TIME	SENSOR	STANDARD	RESPONSE
Jul16,04	01:01:14	GAM(NAT)	Default [API-GR ]	Default [CPS]
Jul16,04	00:01:14	GAM(NAT)	Default [API-GR ]	Default [CPS]



## **APPENDIX D**

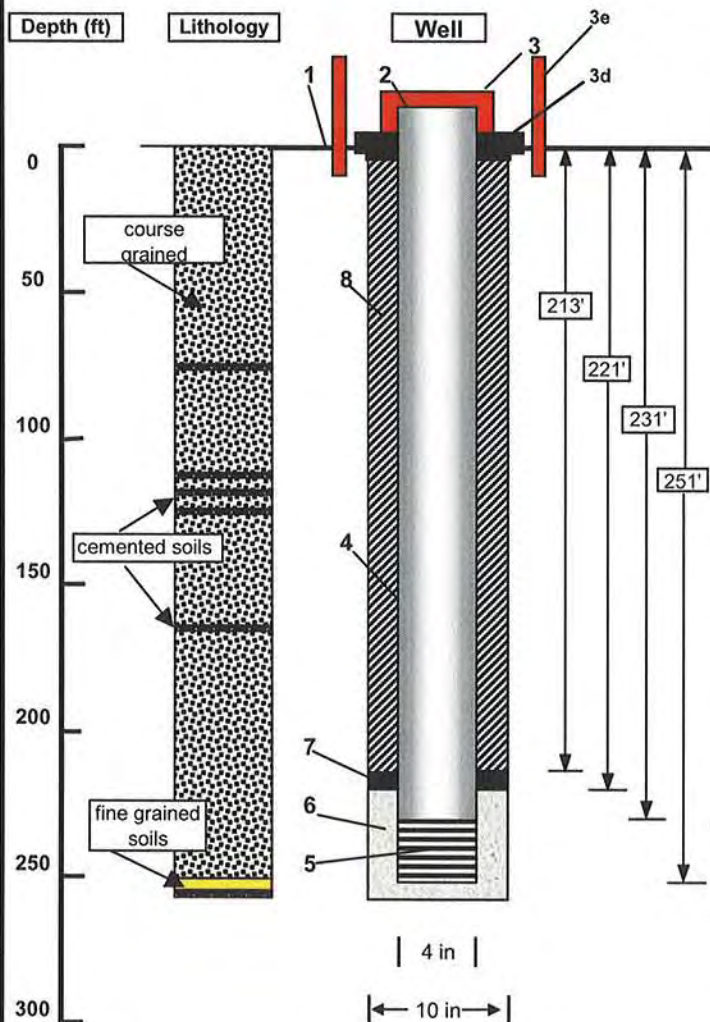


CONTRACTOR <b>Kleinfelder/Parsons</b>	WELL NUMBER <b>D - 16</b>	PLATE <b>D-1</b>
--	------------------------------	---------------------

## TEAD Phase II RFI - SWMU 58

### MONITORING WELL INSTALLATION DATA RECORD

PROJECT : <b>Phase II RFI - SWMU 58</b>	LOCATION : <b>Tooele County, Utah</b>
DRILLING SUBCONTRACTOR : <b>Layne Geoconstruction</b>	DRILLER: <b>Tom Kearn</b>
DRILLING METHOD AND EQUIPMENT: <b>Becker Hammer-Drill Systems AP1000</b>	HELPERS: <b>Nate Salazar, Dave Kyle</b>
WATER LEVEL : <b>214.00 ft (TOC) on 11/01/04</b>	START: <b>10/15/04</b> END: <b>10/26/04</b> GEOLOGIST: <b>Matt Ivers</b>



DRAWING NOT TO SCALE

- 1- Ground elevation at well : 4577.746 feet above sea level
  - 2- Measuring point elevation : 4580.106 feet (top of well casing)
  - 3- Surface completion casing :
    - a) type / diameter ( ID/ OD) Steel - 10 inch ID / 10 3/8 inch OD
    - b) height above ground 3 feet
    - c) length below ground 3 feet
    - d) type / quantity of sealant Portland cement / 16 - 92.6 lb bags
    - e) protective bollards 4 - 4 inch steel concrete filled (4' ags - 2' bgs)
  - 4- Well casing :
    - a) type / diameter ( ID/ OD) Schedule 40 PVC / 4 inch
    - b) height above ground 2.36 feet
    - c) length below ground 250.75 feet
    - d) type / quantity of sealant see # 8
    - e) well centralizers none
  - 5- Well screen :
    - a) type / diameter ( ID/ OD) Schedule 40 PVC / 4 inch
    - b) slot size .010 inch
    - c) lengths 2 - 10 foot sections (231 to 251 feet bgs)
  - 6- Well screen filter pack :
    - a) type #16 / 40 Colorado Silica Sand
    - b) quantity used 24 - 50 lb bags
    - c) method of placement poured from surface
    - d) length 221 to 255 feet bgs
  - 7- Bentonite seal :
    - a) type/ quantity Cetco coated pellets / 4 - 5 gallon buckets
    - b) length 221 to 231 feet bgs
  - 8- Grout :
    - a) grout mix used per batch 28 gal water to 2 - 50 lb bags Pure Gold Bentonite
    - b) method of placement pumped from surface
    - c) qty of well casing grout 56 bags (approx 784 gallons)
- Well development :
- a) method bail and swab / pump and back-flush
  - b) time 2 hour 19 minutes / 2 hours 40 minutes
- Pumping tests :
- a) drawdown / time 0.25 feet / 20 minutes
  - b) pumping rate 9 gpm



Legal Description – Monitor Well No. D-16

A fifty foot diameter well easement for the purpose of accessing monitor well No. D-16, the center point of which is described as follows:

Commencing at the Southeast corner of Section 7, Township 3 South, Range 4 West, Salt Lake Base and Meridian; and running thence North  $00^{\circ}21'59''$  West along the east line of the Southeast Quarter of said Section 7, a distance of 1,609.58 feet; thence South  $89^{\circ}38'01''$  West, a distance of 210.45 feet to the center point of a PVC pipe marking Monitor Well No. D-16, and point of terminus.

Well No. D-16 – Access Easement Legal Description

A twelve (12) foot wide access easement for the purpose of accessing Monitor Well No. D-16 from Monitor Well No. D-7, the centerline of which is described as follows:

Beginning at a point which lies  $89^{\circ}42'03''$  West along the south line of the Southeast Quarter of Section 7, Township 3 South, Range 4 West, Salt Lake Base and Meridian, a distance of 2,501.20 feet; and North  $00^{\circ}17'59''$  West, a distance of 1,995.93 feet from the Southeast corner of said Section 7, said point being the beginning of a curve to the right, of which the radius point lies South  $25^{\circ}32'41''$  West, a radial distance of 150.00 feet; and running thence southeasterly along the arc, through a central angle of  $25^{\circ}51'49''$ , a distance of 67.71 feet; thence South  $35^{\circ}59'57''$  East, a distance of 76.49 feet to a point of curve to the left having a radius of 50.00 feet and a central angle of  $37^{\circ}52'57''$ ; thence southeasterly along the arc a distance of 33.06 feet; thence South  $73^{\circ}52'54''$  East, a distance of 289.60 feet to a point of curve to the right having a radius of 50.00 feet and a central angle of  $42^{\circ}17'33''$ ; thence southeasterly along the arc a distance of 36.91 feet; thence South  $31^{\circ}35'21''$  East, a distance of 215.71 feet; thence South  $37^{\circ}38'09''$  East, a distance of 227.09 feet to a point of curve to the left having a radius of 150.00 feet and a central angle of  $52^{\circ}23'01''$ ; thence southeasterly along the arc a distance of 137.14 feet; thence North  $89^{\circ}58'50''$  East, a distance of 1,218.55 feet to a point of curve to the left having a radius of 150.00 feet and a central angle of  $32^{\circ}46'33''$ ; thence easterly along the arc a distance of 85.81 feet; thence North  $57^{\circ}12'17''$  East, a distance of 201.46 feet to a point of curve to the left having a radius of 50.00 feet and a central angle of  $52^{\circ}33'46''$ ; thence northeasterly along the arc a distance of 45.87 feet; thence North  $04^{\circ}38'31''$  East, a distance of 47.80 feet to a point on the perimeter of the fifty foot Monitor Well easement and point of terminus.

The basis of Bearings for this survey is North  $00^{\circ}16'33''$  East between the found witness corner monument for the Northeast corner of Section 19, Township 3 South, Range 4 West, Salt Lake Base and Meridian, and the found monument for the Southeast corner of Section 7, Township 3 South, Range 4 West, Salt Lake Base and Meridian.

SHEEP  
LANE

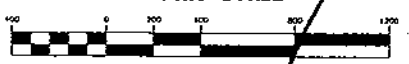
12

13

U.S. ARMY

24

GRAPHIC SCALE



( IN FEET )  
1 inch = 400 ft.

EASEMENT LEGAL

30, TOWNSHIP 3  
D RUNNING THENCE;  
THE NORTHEAST  
THENCE SOUTH  
IN POINT OF A PVC  
MINUS.

19, TOWNSHIP 3  
D RUNNING THENCE  
THENCE SOUTH  
NORTH 00°16'33"  
OF A PVC PIPE  
S.

OF ACCESSING  
DESCRIBED AS

10, TOWNSHIP 3  
D RUNNING THENCE  
THENCE NORTH  
NORTH 89°54'33" EAST,  
PVC PIPE MARKING

OF ACCESSING  
INTERLINE OF WHICH

ALONG THE EAST LINE  
LAKE BASE AND  
1°33" WEST, A  
THE NORTHEAST  
ASTERLY  
THENCE OVER AND  
THE FOLLOWING  
1,865.02 FEET;  
THENCE SOUTH  
ON A DIRT ROAD  
DIFIC  
TOOEE COUNTY  
1°04" WEST ALONG  
ON THE PERIMETER  
TERMINUS.

OF ACCESSING  
DESCRIBED AS

TOWNSHIP 3 SOUTH,  
THENCE NORTH  
QUARTER OF SAID  
143°03" EAST, A  
PVC PIPE MARKING

OF ACCESSING  
INTERLINE OF WHICH

ALONG THE EAST LINE  
LAKE BASE AND  
1°33" WEST, A  
THE NORTHEAST  
ASTERLY  
THENCE OVER AND  
THE FOLLOWING  
1,865.02 FEET;  
THENCE SOUTH  
ON A DIRT ROAD  
DIFIC

TOOEE COUNTY  
E OF A NON  
NORTH  
ALONG THE ARC,  
729.65 FEET (CHORD)  
THENCE NORTH  
OF CURVE OF A  
POINT LIES NORTH  
THENCE NORTHERLY  
A DISTANCE OF  
TANCE OF 856.77  
179 FEET TO A POINT  
EMENT AND POINT OF

LEGAL DESCRIPTIONS (CONT'D)

LEGAL DESCRIPTION - MONITOR WELL NO. D-16

A FIFTY FOOT DIAMETER WELL EASEMENT FOR THE PURPOSE OF ACCESSING MONITOR WELL NO. D-16, THE CENTER POINT OF WHICH IS DESCRIBED AS FOLLOWS:  
COMMENCING AT THE SOUTHEAST CORNER OF SECTION 7, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN; AND RUNNING THENCE NORTH 00°21'59" WEST ALONG THE EAST LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 7, A DISTANCE OF 1,609.58 FEET; THENCE SOUTH 89°38'01" WEST, A DISTANCE OF 210.45 FEET TO THE CENTER POINT OF A PVC PIPE MARKING MONITOR WELL NO. D-16, AND POINT OF TERMINUS.

WELL NO. D-16 - ACCESS EASEMENT LEGAL DESCRIPTION

A TWELVE (12) FOOT WIDE ACCESS EASEMENT FOR THE PURPOSE OF ACCESSING MONITOR WELL NO. D-16 FROM MONITOR WELL NO. D-7, THE CENTERLINE OF WHICH IS DESCRIBED AS FOLLOWS:  
BEGINNING AT A POINT WHICH LIES 89°42'03" WEST ALONG THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 7, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN, A DISTANCE OF 2,501.20 FEET; AND NORTH 00°17'59" WEST, A DISTANCE OF 1,995.93 FEET FROM THE SOUTHEAST CORNER OF SAID SECTION 7, SAID POINT BEING THE BEGINNING OF A CURVE TO THE RIGHT, OF WHICH THE RADIUS POINT LIES SOUTH 25°32'41" WEST, A RADIAL DISTANCE OF 150.00 FEET; AND RUNNING THENCE SOUTHEASTERLY ALONG THE ARC, THROUGH A CENTRAL ANGLE OF 25°51'49", A DISTANCE OF 87.71 FEET; THENCE SOUTH 35°59'57" EAST, A DISTANCE OF 76.49 FEET TO A POINT OF CURVE TO THE LEFT HAVING A RADIUS OF 50.00 FEET AND A CENTRAL ANGLE OF 37°52'57"; THENCE SOUTHEASTERLY ALONG THE ARC A DISTANCE OF 33.06 FEET; THENCE SOUTH 73°52'54" EAST, A DISTANCE OF 289.60 FEET TO A POINT OF CURVE TO THE RIGHT HAVING A RADIUS OF 50.00 FEET AND A CENTRAL ANGLE OF 42°17'33"; THENCE SOUTHEASTERLY ALONG THE ARC A DISTANCE OF 36.91 FEET; THENCE SOUTH 31°35'21" EAST, A DISTANCE OF 215.71 FEET; THENCE SOUTH 37°38'09" EAST, A DISTANCE OF 227.09 FEET TO A POINT OF CURVE TO THE LEFT HAVING A RADIUS OF 150.00 FEET AND A CENTRAL ANGLE OF 52°3'01"; THENCE SOUTHEASTERLY ALONG THE ARC A DISTANCE OF 137.14 FEET; THENCE NORTH 89°58'50" EAST, A DISTANCE OF 1,218.55 FEET TO A POINT OF CURVE TO THE LEFT HAVING A RADIUS OF 150.00 FEET AND A CENTRAL ANGLE OF 32°46'33"; THENCE EASTERLY ALONG THE ARC A DISTANCE OF 85.81 FEET; THENCE NORTH 57°12'17" EAST, A DISTANCE OF 201.45 FEET TO A POINT OF CURVE TO THE LEFT HAVING A RADIUS OF 50.00 FEET AND A CENTRAL ANGLE OF 52°33'46"; THENCE NORTHEASTERLY ALONG THE ARC A DISTANCE OF 45.87 FEET; THENCE NORTH 04°38'31" EAST, A DISTANCE OF 47.80 FEET TO A POINT ON THE PERIMETER OF THE FIFTY FOOT MONITOR WELL EASEMENT AND POINT OF TERMINUS.

THE BASIS OF BEARINGS FOR THIS SURVEY IS NORTH 00°16'33" EAST BETWEEN THE FOUND WITNESS CORNER MONUMENT FOR THE NORTHEAST CORNER OF SECTION 19, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN, AND THE FOUND MONUMENT FOR THE SOUTHEAST CORNER OF SECTION 7, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN.

NARRATIVE OF BOUNDARY:

THE PURPOSE OF THIS SURVEY MAP IS TO SHOW THE LOCATIONS OF FIVE MONITOR WELLS AND ACCESS ROUTES TO THE THREE "D" SERIES WELLS. COORDINATES FOR THE WELL LOCATIONS HAVE BEEN FURNISHED IN THE NAD 27 STATE PLANE CENTRAL ZONE. ELEVATIONS ARE ON THE NAVD 29 SYSTEM.

BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS SURVEY IS NORTH 00°16'33" EAST BETWEEN THE FOUND WITNESS CORNER MONUMENT FOR THE NORTHEAST CORNER OF SECTION 19, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN, AND THE FOUND MONUMENT FOR THE SOUTHEAST CORNER OF SECTION 7, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN.

SURVEYOR'S CERTIFICATE:

I, ROBERT O. BAKER DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR LICENSED TO PRACTICE IN THE STATE OF UTAH, AND THAT I HOLD LICENSE NO. 172816. I FURTHER CERTIFY THAT I HAVE MADE A SURVEY OF THE PARCEL OF LAND SHOWN ON THIS MAP. THAT THE SURVEY WAS CONDUCTED USING GENERALLY ACCEPTED SURVEYING PRACTICES. IT DOES NOT PURPORT TO SHOW ALL EASEMENTS OF RECORD, NOR IS IT PROOF OF OWNERSHIP.

ROBERT O. BAKER  
UTAH REGISTERED LAND SURVEYOR  
LICENSE NO. 172816

LOCATED IN PARTS OF SECTION 7, 17, 19, 20, and 30  
TOWNSHIP 3 SOUTH, RANGE 4 WEST,  
SALT LAKE BASE AND MERIDIAN,  
TOOEE, UTAH

SHEET:  
1 OF 1

REVISIONS			
No.	DATE	BY	REVISION

## **APPENDIX E**



**TOOELE ARMY DEPOT  
MONITORING WELL SAMPLING DATA**

Well ID: <u>D-16</u>	Initial Depth to Water: <u>214.00</u>
Sample ID:	Total Depth of Well: <u>253.25</u>
Duplicate ID:	Well Diameter: <u>4"</u>
Sample Depth:	(a) 1 Casing Volume:
Date: <u>11/1/04</u>	(b) 1 Filter Pack Water Volume:
Sampled By:	(a) + (b) x 3 = Minimum Volume to Purge:
Method of Sampling: <u>Development + S.S. Bailer</u>	Method of Purging: <u>Development + S.S. Bailer</u>

Time	Intake depth	Rate (gpm)	Cum. vol. (gal)	Temp (°F) C	pH (units)	Conductivity (µS/cm)	Turbidity (NTUs)	TDS (g/L)	DO (mg/L)	ORP (mv)	Salinity (ppt)	Color & Sediment
1009	2nd*	Bailer	6	13.8	7.12	1841	>1000					orange fine
1032	10th	Bailer	30	14.6	7.54	1833	>1000					orange fine
1109	20th	Bailer	60	16.4	7.56	1842	>1000					orange fine
1115	Surg. ing well	w/ surge			Block							
203	30th	Bailer	90	16.6	7.79	1820	>1000					cloudy none
205	Surg. ing well	w/ surge			Block							
228	35th	Bailer	105	16.7	7.73	1843	>1000					cloudy none
2:19												

pH Calibration (select two)				Conductivity Meter Calibration		Turbidimeter Calibration	
Buffer solution	pH 4.0	pH 7.0	pH 10.0	Solution	<u>1413</u>	Standard	<u>5.39</u>
	<u>4.0</u>	<u>7.0</u>	<u>10.0</u>		<u>991.37</u>		
Instrument reading	<u>0941</u>	<u>0943</u>		Instrument reading	<u>1413</u>	Instrument reading	<u>5.39</u>
					<u>0946</u>		<u>0937</u>

Notes: \* Bailer holds 3 gal



**TOOELE ARMY DEPOT  
MONITORING WELL SAMPLING DATA**

Well ID: <b>D-16</b>	Initial Depth to Water: <b>214.00</b>
Sample ID:	Total Depth of Well: <b>253.25</b>
Duplicate ID:	Well Diameter:
Sample Depth:	(a) 1 Casing Volume: <b>26 gal</b>
Date: <b>11/1/04</b>	(b) 1 Filter Pack Water Volume:
Sampled By:	(a)+(b)x3= Minimum Volume to Purge: <b>78 gal</b>
Method of Sampling: <b>Development 4" Submersible</b>	Method of Purging: <b>Development 4" Submersible</b>

Time	Intake depth	Rate (gpm)	Cum. vol. (gal)	Temp (°F)	pH (units)	Conductivity (µS/cm)	Turbidity (NTUs)	TDS (g/L)	DO (mg/L)	ORP (mv)	Salinity (ppt)	Color & Sediment
1345	252	9.29	0									
1354	252	9.04	81	12.5	7.62	1851	657					cloudy none
1408	252	9.04	162	12.2	7.64	1885	136					cloudy none
1412	252	9.16	243	12.2	7.65	1862	68.9					cloudy none
1421	252	9.16	324	12.3	7.66	1871	42.3					cloudy none
1430	252	9.04	405	12.2	7.67	1889	32.1					clear none
1431	Back flushed well			5x								
1448	Parameters after backflush			11.9	7.67	1918	298					cloudy none
1457	252	9.04	486	11.7	7.71	1881	57.5					cloudy none
1506	252	9.16	567	12.3	7.74	1862	17.1					clear none
1507	Backflushed well			5x								
1522	Parameters After Backflush			13.1	7.65	1875	89.9					cloudy none

pH Calibration (select two)				Conductivity Meter Calibration		Turbidimeter Calibration	
Buffer solution	pH 4.0	pH 7.0	pH 10.0	Solution		Standard	
Instrument reading				Instrument reading		Instrument reading	

Notes:





**TOOELE ARMY DEPOT  
MONITORING WELL SAMPLING DATA**

Well ID: <u>D-16</u>	Initial Depth to Water:
Sample ID:	Total Depth of Well:
Duplicate ID:	Well Diameter:
Sample Depth:	(a) 1 Casing Volume:
Date: <u>11/2/04</u>	(b) 1 Filter Pack Water Volume:
Sampled By:	(a) + (b) x 3 = Minimum Volume to Purge:
Method of Sampling:	Method of Purging:

Time	Intake depth	Rate (gpm)	Cum. vol. (gal)	Temp (°F)	pH (units)	Conductivity (µS/cm)	Turbidity (NTUs)	TDS (g/L)	DO (mg/L)	ORP (mv)	Salinity (ppt)	Color & Sediment
0816	252	9.04	8810									
0825	252	9.04	891	12.9	7.59	1889	7.06					clear none
0834	252	9.16	972	12.8	7.62	1898	1.24					clear none
0843	252	9.16	1053	13.1	7.67	1881	.66					clear none
0852	252	9.04	1134	12.9	7.72	1878	.65					clear none
0936												

pH Calibration (select two)				Conductivity Meter Calibration		Turbidimeter Calibration	
Buffer solution	pH 4.0	pH 7.0	pH 10.0	Solution	1413	Standard	5.39
Instrument reading	4.0	7.0		Instrument reading	1413	Instrument reading	5.39
	0758	0800			0755		0757

Notes:

Monday ~~Dec~~ November 1, 2004  
 Weather: Clear, Cool ~40°  
 Wind: None

0856	Arrive at D-16 and start Setup	0
	SWL 214.00 TD 253.25	0
0934	Calibrated Equipment	0
1009	2nd Bailer removed, Parameters Taken	0
1032	10th Bailer removed, Parameters Taken	0
1109	20th Bailer removed, Parameters Taken	0
1115	Surging well w/ Surge Block	0
1203	30 Bailer removed, Parameters Taken	0
1205	Surging well w/ surge Block	0
1228	35 Bailer removed, Parameters Taken	10
1246	Lowering pump and piping	11
1343	Pump on establishing Flow	11
1345	Flow established at 9 gpm, Intake 253'2" 3M	
1431	Pump off, Backflushed 5x	
1507	Pump off, Backflushed well 5x	
1549	Pump off, Parameters stable except Turbidity is reading 10 NTU's. Will Resume pumping Tomorrow	16
1600	Decon Equipment	16
1732	off loading ~900 gal of purge water into Tanker	13
1811	Leaving Tanker → Storage	13



Tuesday November 2, 2004  
 weather: clear, Cool ~30°  
 Wind: Breeze from South

- 0748 Arrive at O-16 and start Setup  
 0752 Calibrated Equipment  
 0814 Pump on establishing flow  
 0816 Flow established at 9 gpm, Intake 252  
 0852 Parameters stable, Turbidity less than 5 NTU  
 verified by Parsons  
 0853 Pump off  
 0900 Removing pump and piping  
 0942 Decan Equipment  
 1042 Leaving O-16 → Tanker  
 1103 Arrive at Tanker and offloading  
 ~350 gal of Purge water

November  
 Thursday October<sup>SR</sup> 4, 2004  
 weather: clear, warm ~50°  
 Wind: None

- 1215 Arrive at O-12 and installing 1 sampler  
 (SWL 339.60) at 351.5  
 1232 Arrive at O-13 and installing 2 samplers  
 at 374, SWL 357  
 1305 Arrive at O-16 and installing 1 sampler  
 at 240, SWL 214.00

07:00 Arrived at Field trailer  
- Prepped for well development  
- Prepped to give Veolia water sampling supplies

07:45 Arrived at gate on Sheep Lane  
MP already there and parked truck inside gate

08:00 Veolia arrives. Will need to bring back truck so it will take extra

08:15 Arrive at well D-16

08:30 Veolia has to go back to get other truck

09:00 Veolia arrives back with rig.  
HHS meeting

09:20 Water level = 214.00 ft B70C  
Well Depth = 253.25 ft B70C

10:00 Starter pulling

11:15 Surging well

12:05 Surging well

Bailed 105 gallons

13:43 Start pumping

14:32 Backflushing 5x

15:07 Backflushing 5x

\* Matt Ivers from Kleinfelder on-site. Needs lockst bolts because drilling at C-41 have problems & need to lock up wells for night

15:51 Stopped pumping because pump truck is full

Continued on Page

Read and Understood By

Signed

Date

Signed

Date

15:51 - 16:07 - Recorded drawdown readings

17:00 Steve Kubacki arrives w/ truck to pull poly-tank full of water

17:30 Arrive at tanker and start pumping water from poly tank to tanker

18:15 Complete pumping of water, lock tanker, and leaves Site

Continued on Page \_\_\_\_\_

Read and Understood By \_\_\_\_\_

Signed \_\_\_\_\_

Date \_\_\_\_\_

Signed \_\_\_\_\_

Date \_\_\_\_\_

## **APPENDIX F**

## PDB MONITORING WELL SAMPLE LOG

(If multiple PDB samplers are deployed in a single well, use one sample log for EACH sampler)

### PDB DEPLOYMENT

Project No.:		Well LOCID: 0-16	
Installation: TOOELE ARMY DEPOT		Log Book No.	Pages: 45
Contractor: Veolia Water		Sampler(s):	
PDB Deployment Date: / / ; Time:		Weather: Wind Dir: , at ~ mph; Air Temp: °F	
Well Labeled: Y/N [Y] Well Secure: Y/N [Y]		Comments:	
PID SN:		Well Headspace (PID mu)      Odor	
Water Level Instrument: Solinst		Serial No.: model 101	
SWL (ft BTOC): 214.00	Measured Well Depth (ft BTOC): 253.25	Reported Well Depth (ft BTOC):	
Sediment Thickness (ft):	Number of PDB Samplers deployed in well: 1	Tether Line Material: Teflon Coated SS	
Type of Tether Weight:		Total Weight used (oz.):	
PDB bag length (inches): 16	PDB bag volume (ml):	Protective Mesh used: Y/N [Y]	
Source of Deionized Water used in Bag: mount olympus			

### PDB RETRIEVAL AND SAMPLE

Well LOCID: 0-16		PDB Retrieval Date: 11/23/04 Retrieval Time: 1306	
Was ALL Deployed Equipment Retrieved (Line, Bags, Weights): Y/N [Y] if NO, Explain:			
Comments on Well and PDB Tether Assembly Condition:			
Weather: Wind Dir: , at ~ mph;		Precipitation:	Air Temperature: °F
Sample No. (FIELDSAMPID): 0-16GW001		Sample Date: 11/23/04	Sample Time: 1311
Sampler (s):	Sample Beg. Depth (ft bgs):	Sample Ending Depth (ft bgs):	
Sample Collection Method: <input checked="" type="checkbox"/> Discharge Tube <input type="checkbox"/> Other (explain):			
Approximate Volume of Excess Sample Water After Sampling (ml): 0			
Excess Sample Water Placed in Drum: Y/N [ ]		Drum Number:	
SWL Following Sampling (ft BTOC):		Sample Equipment Decon: Date:      by:	
Decon Water Placed in Drum: Y/N [ ]		Drum Number:	
Prepared by:	Date: / /	Reviewed by:	Date: / /

Tuesday November 2, 2004  
 weather: clear, Cool  $\sim 30^{\circ}$   
 Wind: Breeze From South

- 0748 Arrive at O-16 and start Setup  
 0752 Calibrated Equipment  
 0814 Pump on, establishing flow  
 0816 Flow established at 9 gpm, Intake 252  
 0852 Parameters stable, Turbidity less than 5 ntu  
 verified by Parsons  
 0853 Pump off  
 0900 Removing pump and piping  
 0942 Decon Equipment  
 1042 Leaving O-16  $\rightarrow$  Tanker  
 1103 Arrive at Tanker and offloading  
 $\sim 350$  gal of Purge water

November  
 Thursday October<sup>ST</sup> 4, 2004  
 weather: clear, warm  $\sim 50^{\circ}$   
 Wind: None

- 1215 Arrive at O-12 and installing 1 sampler  
 (SWL 339.60) at 351.5  
 1232 Arrive at O-13 and installing 2 samplers  
 at 374, SWL 357  
 1305 Arrive at O-16 and installing 1 sampler  
 at 240, SWL 214.00

Tuesday November 23, 2004  
Weather: Clear, mild ~40°  
Wind: None

- 1130 Arrive at D-12 and preparing to Sample  
1143 Removing PDB Sampler  
1147 Sampled PDB sampler, 40ml w/HCL 3 vials  
D-12 GWOOL  
1159 Leaving D-12 → D-13  
1205 Arrive at D-13 and preparing to Sample  
1212 Removing PDB sampler  
Sampled PDB sampler, 40ml w/HCL  
1218 (3) vials Taken D-13 GWOOL  
(1230) (3) vials Taken D-13 FWOOL  
1235 Leaving D-13 → D-16  
1300 Arrive at D-16 and preparing to Sample  
1306 ~~5 vials Taken~~ Removing PDB Sampler  
5 vials Taken from PDB Sampler 40ml w/HCL  
1311 (3) D-16 GWOOL  
1311 (1) D-16 MSOOL  
1311 (1) D-16 SDOOL  
1321 Leaving D-16 → Parsons Field office

## **ANALYTICAL QUALITY CONTROL SUMMARY**

Samples were collected in accordance with the analytical and quality control specifications of the Final Phase II RCRA Facility Investigation SWMU-58 Work Plan (Parsons, 2003). Passive diffusion bag samplers were deployed in wells D-12, D-13, and D-16 on the same day. Samples (including field quality control samples) were collected on the 23<sup>rd</sup> of November 2004 and submitted to Ecology and Environment Analytical Service Center, a Utah and USACE-certified analytical laboratory.

Results were received and submitted to third party data review by Synectics. Data review included checks of the following data quality elements: Holding times, continuing calibration verification, method blanks, field blanks, laboratory control sample recovery, matrix spike and matrix spike duplicate recovery and precision, surrogate recovery, and field duplicate precision. No out of control events warranting qualification of the data were observed. Analytical and data validation reports are attached.





## analytical services center

International Specialists in Environmental Analysis

4493 Walden Avenue, Lancaster, New York 14086

Tel: 716/685-8080, 800/327-6534 • Fax: 716/685-0852 • Email: asc@ene.com



December 13, 2004

Jan Barbas  
Parsons Engineering Science, Inc.  
406 W. South Jordan Pkwy.  
Suite 300  
South Jordan, Utah 840953944

RE: Tooele RCRA Phase II

Work Order No.: 0411354

Dear Jan Barbas,

Analytical Services Center received 5 samples on Monday, November 29, 2004 for the analyses presented in the following report.

The ASC certifies that the test results in this report meet all requirements of NELAC for which it holds certification except as noted in this narrative and/or as flagged in the report.

The ASC is accredited in the Fields of Testing Potable water (SDWA), Solid and Chemical Materials (Solid Hazardous Wastes, RCRA), Water (CWA and other non-potable water) and Air and Emissions. Its primary accrediting authorities are New York State Department of Health and Florida Department of Health. The particular analytes/methods certified may be ascertained by requesting the laboratory's current certificates from your laboratory Project Manager.

You will receive an invoice under separate cover.

E & E will retain the samples addressed in this report for 30 days, unless otherwise instructed by the client. If additional storage is requested, the storage fee is \$1.00 per sample container per month, to accrue until the client authorizes sample destruction.

This report is not to be reproduced, except in full, without the written approval of the laboratory.

Sincerely,

  
Tony Bogolin

Project Manager

CC:

Enclosures as noted



**Analytical Services Center**  
International Specialists in Environmental Analysis  
Lancaster, New York 14086-  
Phone: (716) 685-8080 Fax: (716) 685-0852

## Laboratory Results

NYS ELAP ID#: 10486

**CLIENT:** Parsons Engineering Science, Inc.  
**Project:** Tooele RCRA Phase II  
**Lab Order:** 0411354  
**Date Received:** 11/29/2004

### Work Order Sample Summary

Lab Sample ID	Client Sample ID	Alt. Client Id	Collection Date
0411354-01A	D-12GW001		11/23/2004 11:47:00 AM
0411354-02A	D-13GW001		11/23/2004 12:18:00 PM
0411354-03A	D-13FD001		11/23/2004 12:30:00 PM
0411354-04A	D-16GW001		11/23/2004 1:11:00 PM
0411354-05A	TRIP BLANK		11/23/2004 7:00:00 AM



## Analytical Services Center

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

## Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: PARSONS ENGINEERING SCIENCE, INC.  
Project: Tooele RCRA Phase II  
Lab Order: 0411354

### CASE NARRATIVE

Samples were received at a cooler temperature of  $>15^{\circ}\text{C}$ . They were shipped on 11/23/04 and received at the E&E corporate office on 11/26/04. The samples were then delivered to the Analytical Services Center on 11/29/04. A trip blank was received but was not listed on a chain-of-custody form. Jan Barbas was notified on November 29, 2004 and instructed the laboratory to attempt to analyze all samples including the trip blank within half the hold time (7 days). All samples were analyzed on the seventh day of the hold time.

#### GCMS VOLATILES

A DB 624 column and a trap packed with OV-1, Tenax, silica gel and activated charcoal was used for the volatile analysis.

#### Sample Analysis

All aqueous volatile samples were determined to be at a pH of 1.

All samples were analyzed within hold time.

#### Calibration and Tunes

All initial and continuing calibrations were acceptable.

There were no manual integrations required.

#### QC

All surrogate recoveries were within acceptable limits.

All blank analyses were acceptable.

All matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were acceptable.

All laboratory control sample(LCS) recoveries were acceptable.

All internal standard area responses were acceptable.

Tony Bogolin

December 13, 2004

Project Manager

# SAMPLE RECEIPT RECORDS

<b>CHAIN OF CUSTODY</b> PARSONS COC ID: 821	Project Name:	Tooele Industrial Area	Contractor:	Parsons - SLC	Parsons Point of Contact: Jan Barbas
	Project Manager:	Ed Staes	Installation:	TEAD	Suite 300
	Sample Coordinator:	Jeff Bigelow	Sample Program:	Shallow Soil Sampling	South Jordan, Utah 84095 (801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Bag. Depth	End. Depth	Total Conts.
D-12	D-12	D-12GW001	WG	DF	N	1	11/23/04	1147	JH			3
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					23110401					

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>Jeff Bigelow</i>	11/23/04 1410	<i>[Signature]</i>	23 Nov 04 1410
<i>[Signature] TO FedEx</i>	11/23/04 1600	<i>[Signature]</i>	11/24/04 1200

# CHAIN OF CUSTODY

PARSONS

COC ID: 822

Project Name: Tooele Industrial Area

Contractor: Parsons - SLC

Parsons Point of Contact: Jan Barbas  
406 W. South Jordan Parkway

Project Manager: Ed Staes

Installation: TEAD

Suite 300  
South Jordan, Utah 84095

Sample Coordinator: Jeff Bigelow

Sample Program: Shallow Soil Sampling

(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Reg. Depth	End. Depth	Total Conts.
D-13	D-13	D-13GW001	WG	DF	N	1	11/23/04	1218		IM		3
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					23110401					

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>Jeff Bigelow</i>	11/23/04 1410	<i>Jan Barbas</i>	23 NOV 04 1410
<i>Ed Staes</i> To Fed Ex	11/23/04 1600	<i>Jeff Bigelow</i>	11/29/04 1200

# CHAIN OF CUSTODY

PARSONS

COC ID: 823

Project Name: Tooele Industrial Area

Contractor: Parsons - SLC

Parsons Point of Contact: Jan Barbas  
406 W. South Jordan Parkway

Project Manager: Ed Staes

Installation: TEAD

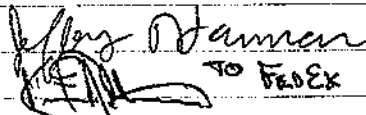
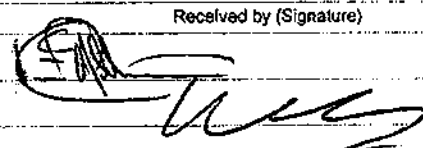
Suite 300  
South Jordan, Utah 84095

Sample Coordinator: Jeff Bigelow

Sample Program: Shallow Soil Sampling

(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-13	D-13	D-13FD001	WG	DF	FD	1	11/23/04	1230	JH			3
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					2540401					

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
 TO FEDEX	11/23/04 1410		23 11/23/04 1410
	11/23/04 1600		11/23/04 1200

# CHAIN OF CUSTODY

PARSONS

COC ID: 827

Project Name: Tooele Industrial Area

Contractor: Parsons - SLC

Parsons Point of Contact: Jan Barbas  
406 W. South Jordan Parkway

Project Manager: Ed Staes

Installation: TEAD

Suite 300  
South Jordan, Utah 84095

Sample Coordinator: Jeff Bigelow

Sample Program: Shallow Soil Sampling

(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-16	D-16	D-16GW001	WG	DF	N	1	11/23/04	1311	JM			3
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					23110401					

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
Jeffery Stann TO Red Ex	11/23/04 1410	JEAN	11/23/04 1410
	11/23/04 1600 KA	Key	11/23/04 1240



# CHAIN OF CUSTODY

PARSONS

COC ID: 828

Project Name: Tooele Industrial Area

Contractor: Parsons - SLC

Parsons Point of Contact: Jan Barbas  
405 W. South Jordan Parkway

Project Manager: Ed Staes

Installation: TEAD

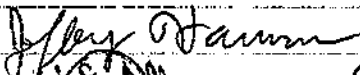
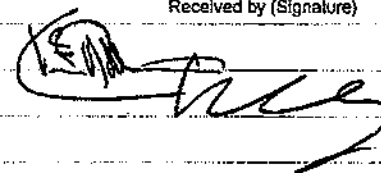

Suite 300  
South Jordan, Utah 84095

Sample Coordinator: Jeff Bigelow

Sample Program: Shallow Soil Sampling

(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-16	D-16	D-16MS001	WG	DF	MS	1	11/23/04	1311	JM			1
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					23110401					

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	11/23/04 1410		23 Nov 04 1410
 To Geo Ex	11/23/04 1600		11/24/04 1200

# CHAIN OF CUSTODY

PARSONS

COC ID: 829

Project Name: Tooele Industrial Area

Contractor: Parsons - SLC

Parsons Point of Contact: Jan Barbas  
406 W. South Jordan Parkway

Project Manager: Ed Staes

Installation: TEAD

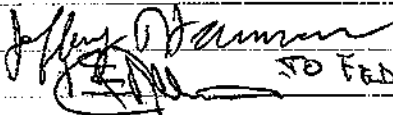
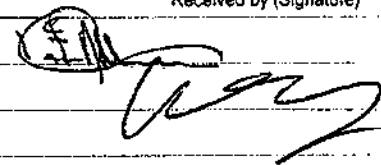
Suite 300  
South Jordan, Utah 84095

Sample Coordinator: Jeff Bigelow

Sample Program: Shallow Soil Sampling

(801) 572-6999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-16	D-16	D-16SD001	WG	DF	SD	1	11/23/04	1311	SM			1
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					23110401					

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	11/23/04 1410		23 Nov 04 1410
TO FED EX	11/23/04 1600		11/24/04 1200



## Cooler Receipt Form

No. of Packages:		Date Received:	11/29/04
Package Receipt No.:	15016	Project or Site Name:	
Client:	Parsons		

### A. Preliminary Examination and Receipt Phase

1. Did coolers come with airbill or packing slip?	Yes	No	NA
Circle carrier here and print airbill number below: Fed Ex Airborne Client Other			
Shipped as high hazard or dangerous goods?	Yes	No	NA
2. Did cooler(s) have custody seals?	Yes	No	NA
3. Were custody seals unbroken and intact on receipt?	Yes	No	NA
4. Were custody seals dated and signed?	Yes	No	NA
5. How was package secured? <input type="checkbox"/> Not secured <input type="checkbox"/> Fiberglass Tape <input checked="" type="checkbox"/> TAPE			

### B. Unpacking Phase

6. Date cooler(s) opened: 11/29/04	Cooler(s) opened by: (Signature) [Signature]
7. Was a temperature blank vial included inside cooler(s)?	Yes No NA
Please Record Temperature Vial or Cooler Temperature for Each Cooler, Range (2° - 6°C)*	
8457-2785 3991	25.0
Thermometer No.: 231	Correction Factor: 0
*If temperature is outside of acceptable range, prepare a PM Notification form indicating affected containers.	
8. Were the C-O-C forms received?	Yes No NA
C-O-C forms numbers if present:	
9. Was enough packing material used in cooler(s)?	Yes No NA
Type of material: <input type="checkbox"/> Vermiculite <input checked="" type="checkbox"/> Bubble Wrap <input type="checkbox"/> Other	
10. If cooling was required, what was the means (type ice) of cooling used: <input checked="" type="checkbox"/> Wet <input type="checkbox"/> Dry <input type="checkbox"/> Blue <input type="checkbox"/> Other	Yes No NA
11. Were all containers sealed in separate plastic bags?	Yes No NA
12. Did all containers arrive unbroken and in good condition?	Yes No NA
13. Interim storage area if not logged:	
In: Date _____ Time _____ Signature _____	
Out: Date _____ Time _____ Signature _____	

### C. Login Phase

Samples Logged in By Signature: [Signature]	Date: 11/29/04
14. Were all container labels complete (e.g. date, time preserved)?	Yes No NA
15. Were all C-O-C forms filled out properly in black ink and signed?	Yes No NA
16. Did the C-O-C form agree with containers received?	Yes No NA
17. Were the correct containers used for the tests requested?	Yes No NA
18. Were the correct preservatives listed on the sample labels?	Yes No NA
19. Was a sufficient sample volume sent for the tests requested?	Yes No NA
20. Were all volatile samples received without headspace?	Yes No NA



## PROJECT MANAGER NOTIFICATION

Originator: K. Oakley Date: 11/29/04  
ASC Project Manager: Tony Bonghe Client: Parrsons - Toledo  
Job Nos.: 0411354  
Sample Nos.: A11

### Nature of Concern:

☐ Samples warm @ 75.0°c

#### List Containers:

☐ Containers broken. List: \_\_\_\_\_

☐ Discrepancy between sample containers and COC form

☐ Incorrect or insufficient preservation

☐ Headspace in volatile vials (waters samples only)

☐ Lost shipment: \_\_\_\_\_

☐ Other (e.g., leaking container, unreadable label, COC form): \_\_\_\_\_

### Further Description:

### PROJECT MANAGER FOLLOW-UP

☒ Notified Client: Jim Parrsons on 11/29/04  
(Date)

☐ Notification attempted:

Means: \_\_\_\_\_

on \_\_\_\_\_  
(Date)

☐ Notification unnecessary

☐ Notify Sample Management

Action: See attached email

Project Manager Signature

Date

## **Bogolin, Tony**

---

**From:** Barbas, Jan [Jan.Barbas@parsons.com]  
**Sent:** Monday, November 29, 2004 5:00 PM  
**To:** Bogolin, Tony  
**Cc:** Torgensen, John  
**Subject:** RE: Tooele sample receipt 112904

Hi,

Please analyze the trip blank.

The EDD does go to Synectics.

Jan

---

**From:** Bogolin, Tony [mailto:ABogolin@ene.com]  
**Sent:** Monday, November 29, 2004 2:43 PM  
**To:** Barbas, Jan  
**Cc:** Torgensen, John  
**Subject:** RE: Tooele sample receipt 112904

Here is the sample receipt information. We received a trip blank that was not listed on the COC forms. We logged it in for analysis. Let me know if you do not want it analyzed.

Does the EDD for these samples go to Synectics?

Tony

---

**From:** Barbas, Jan [mailto:Jan.Barbas@parsons.com]  
**Sent:** Monday, November 29, 2004 2:37 PM  
**To:** Bogolin, Tony  
**Cc:** Torgensen, John; Wehrmann, Pamela A SPK  
**Subject:** RE: Tooele sample receipt 112904

Go ahead and log them in. If you can run them tomorrow I think that would work since I miscounted the hold time. We have until tomorrow. If not lets plan on running them anyway. I'll let the client know and get their input.

Jan

---

**From:** Bogolin, Tony [mailto:ABogolin@ene.com]  
**Sent:** Monday, November 29, 2004 12:16 PM  
**To:** Barbas, Jan  
**Cc:** Torgensen, John; Wehrmann, Pamela A SPK  
**Subject:** RE: Tooele sample receipt 112904

No. The instrument is fully loaded for today so the quickest would be some time tomorrow evening if we could get another instrument up for low-level water VOCs.

---

**From:** Barbas, Jan [mailto:Jan.Barbas@parsons.com]

**Sent:** Monday, November 29, 2004 1:45 PM  
**To:** Bogolin, Tony  
**Cc:** Torgensen, John; Wehrmann, Pamela A SPK  
**Subject:** RE: Tooele sample receipt 112904

Hi Tony,

Thanks for the heads-up. We thought they'd be in last Wednesday. The rule on warm samples is that if they are analyzed within 1/2 hold time they are ok. These were sampled Tuesday. That would mean they have to be analyzed by mid-night today. Can you do that?

Jan

---

**From:** Bogolin, Tony [mailto:ABogolin@ene.com]  
**Sent:** Monday, November 29, 2004 11:30 AM  
**To:** Barbas, Jan  
**Cc:** Torgensen, John  
**Subject:** Tooele sample receipt 112904

Jan:

We received these samples today. They were shipped by FedEx on 11/23 and marked for overnight delivery. Why they did not show until today I don't know. Of course they were warm >15 C. Should we cancel the analysis as they are VOC samples? Let me know.

Tony

<<tooelecoc.pdf>>

# MISC RECORDS



# Analytical Services Center

International Specialists in Environmental Analysis

Lancaster, New York 14086-

Phone: (716) 685-8080

Fax: (716) 685-0852

## Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Order: 0411354

Client: Parsons Engineering Science, Inc.

Project: Tooele RCRA Phase II

## DATES SUMMARY REPORT

Sample ID (CLIENT)	Matrix	Test Name	Collection Date	Received Date	HT (Days) / HT Expire	Analyzed* - Analysis/BatchID	Type	DF	#Analytes	FI
354-01A	D-12GW001	Water Low Level VOCs by Method 8260B	11/23/2004 11:47:00 AM	11/29/2004 12:00:00 PM	14:C 12/7/2004 11:47:00 AM	11/30/2004 4:18:00 PM 107288B	SAMP	1	21	[
354-03A	D-13FD001	Water Low Level VOCs by Method 8260B	11/23/2004 12:30:00 PM	11/29/2004 12:00:00 PM	14:C 12/7/2004 12:30:00 PM	11/30/2004 5:21:00 PM 1072900	SAMP	1	21	[
354-02A	D-13GW001	Water Low Level VOCs by Method 8260B	11/23/2004 12:18:00 PM	11/29/2004 12:00:00 PM	14:C 12/7/2004 12:18:00 PM	11/30/2004 4:49:00 PM 1072899	SAMP	1	21	[
354-04A	D-16GW001	Water Low Level VOCs by Method 8260B	11/23/2004 1:11:00 PM	11/29/2004 12:00:00 PM	14:C 12/7/2004 1:11:00 PM	11/30/2004 5:52:00 PM 1072901	SAMP	1	21	[
354-05A	TRIP BLANK	Water Low Level VOCs by Method 8260B	11/23/2004 7:00:00 AM	11/29/2004 12:00:00 PM	14:C 12/7/2004 7:00:00 AM	11/30/2004 3:46:00 PM 1072897	SAMP	1	21	[

Page 16

Form: C-Collection / R-Receipt(VTSR) / P-Prep / T-TCLP Prep

"Analyzed" reflects the analysis date and time or injection time for analytical tests. For preparation tests "Analyzed" reflects the start of the preparation except when "AFCEE criteria used"; flag indicates date time of completion of the preparation.

TCLP/SPLP Extractions and subsequent preparation tests... "Analyzed" reflects the date of TCLP/SPLP Extraction/preparation. For Re-extracted (RE) samples: Preparation tests completed dates reflects extraction from the original sample leachate unless an "RE" Sample exists for the extraction (tumble) test.

Version #: 041210\_1300

Printed: Monday, December 13, 2004 9:37:11 AM





**Analytical Services Center**  
International Specialists in Environmental Analysis  
Lancaster, New York 14086-  
Phone: (716) 685-8080 Fax: (716) 685-0852

## Laboratory Results

NYS ELAP ID#: 10486

**Client:** Parsons Engineering Science, Inc.  
**Project:** Tooele RCRA Phase II  
**Work Order:** 0411354

## Method References

### GCMS Volatiles

Parsons, Tooele - VOCs, Low Level by GCMS Method 8260B

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes 1A, 1B, 1C & Volume 2. (Includes all Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

# RESULTS SUMMARY

**Analytical Services Center**

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

**Laboratory Results**

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: D-12GW001

Lab Order: 0411354

Alt. Client ID:

Project: Tootle RCRA Phase II

Collection Date: 11/23/2004 11:47:00 A % Moist:

Lab ID: 0411354-01A

Sample Type: SAMP

Matrix: Water

Test Code: C\_8260B\_5030B\_LL\_W\_018

**LOW LEVEL VOCs BY METHOD 8260B**

Method: SW8260B

Prep Method: SW5030B\_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/30/2004 4:18:00 PM	PERRY_041130A	RMJ
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	ND		1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	ND		1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	ND		1.00	µg/L	1			
m,p-Xylene	ND		1.00	µg/L	1			
Methylene chloride	ND		2.00	µg/L	1			
Naphthalene	ND		1.00	µg/L	1			
o-Xylene	ND		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	ND		1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr:1,2-Dichloroethane-d4	110		70 - 130	%REC	1	11/30/2004 4:18:00 PM	PERRY_041130A	RMJ
Surr:4-Bromofluorobenzene	108		70 - 130	%REC	1			
Surr:Toluene-d8	112		70 - 130	%REC	1			

**Definitions:**

\* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits

**Analytical Services Center**

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

**Laboratory Results**

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: D-13GW001

Lab Order: 0411354

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/23/2004 12:18:00 P % Moist:

Lab ID: 0411354-02A

Sample Type: SAMP

Matrix: Water

Test Code: C\_8260B\_5030B\_LL\_W\_018

**LOW LEVEL VOCs BY METHOD 8260B**

Method: SW8260B

Prep Method: SW5030B\_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/30/2004 4:49:00 PM	PERRY_041130A	RMJ
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	ND		1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	0.193	J	1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	ND		1.00	µg/L	1			
m,p-Xylene	ND		1.00	µg/L	1			
Methylene chloride	ND		2.00	µg/L	1			
Naphthalene	ND		1.00	µg/L	1			
o-Xylene	ND		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	ND		1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr:1,2-Dichloroethane-d4	108		70 - 130	%REC	1	11/30/2004 4:49:00 PM	PERRY_041130A	RMJ
Surr:4-Bromofluorobenzene	107		70 - 130	%REC	1			
Surr:Toluene-d8	113		70 - 130	%REC	1			

**Definitions:**

\* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



**Analytical Services Center**  
International Specialists in Environmental Analysis  
4493 Walden Avenue  
Lancaster, New York 14086

## Laboratory Results

NYS ELAP ID#: 10486  
Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: D-13FD001

Lab Order: 0411354

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/23/2004 12:30:00 P % Moist:

Lab ID: 0411354-03A

Sample Type: SAMP

Matrix: Water

Test Code: C\_8260B\_5030B\_LL\_W\_018

### LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B\_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/30/2004 5:21:00 PM	PERRY_041130A	RMJ
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	ND		1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	0.195	J	1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	ND		1.00	µg/L	1			
m,p-Xylene	ND		1.00	µg/L	1			
Methylene chloride	ND		2.00	µg/L	1			
Naphthalene	ND		1.00	µg/L	1			
o-Xylene	ND		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	ND		1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr:1,2-Dichloroethane-d4	109		70 - 130	%REC	1	11/30/2004 5:21:00 PM	PERRY_041130A	RMJ
Surr:4-Bromofluorobenzene	107		70 - 130	%REC	1			
Surr:Toluene-d8	113		70 - 130	%REC	1			

#### Definitions:

\* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignore

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range)

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



**Analytical Services Center**  
International Specialists in Environmental Analysis  
4493 Walden Avenue  
Lancaster, New York 14086

## Laboratory Results

NYS ELAP ID#: 10486  
Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: D-16GW001

Lab Order: 0411354

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/23/2004 1:11:00 P % Moist:

Lab ID: 0411354-04A

Sample Type: SAMP

Matrix: Water

Test Code: C\_8260B\_5030B\_LL\_W\_018

### LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B\_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/30/2004 5:52:00 PM	PERRY_041130A	RMJ
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	ND		1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	ND		1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	ND		1.00	µg/L	1			
m,p-Xylene	ND		1.00	µg/L	1			
Methylene chloride	ND		2.00	µg/L	1			
Naphthalene	ND		1.00	µg/L	1			
o-Xylene	ND		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	ND		1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr: 1,2-Dichloroethane-d4	109		70 - 130	%REC	1	11/30/2004 5:52:00 PM	PERRY_041130A	RMJ
Surr: 4-Bromofluorobenzene	108		70 - 130	%REC	1			
Surr: Toluene-d8	112		70 - 130	%REC	1			

#### Definitions:

\* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range)

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



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Lancaster, New York 14086

## Laboratory Results

NYS ELAP ID#: 10486  
Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: TRIP BLANK

Lab Order: 0411354

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/23/2004 7:00:00 A % Moist:

Lab ID: 0411354-05A

Sample Type: SAMP

Matrix: Water

Test Code: C\_8260B\_5030B\_LL\_W\_018

### LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B\_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/30/2004 3:46:00 PM	PERRY_041130A	RMJ
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	ND		1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	ND		1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	ND		1.00	µg/L	1			
m,p-Xylene	ND		1.00	µg/L	1			
Methylene chloride	0.207	J	2.00	µg/L	1			
Naphthalene	ND		1.00	µg/L	1			
o-Xylene	ND		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	0.262	J	1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr:1,2-Dichloroethane-d4	115		70 - 130	%REC	1	11/30/2004 3:46:00 PM	PERRY_041130A	RMJ
Surr:4-Bromofluorobenzene	108		70 - 130	%REC	1			
Surr:Toluene-d8	110		70 - 130	%REC	1			

#### Definitions:

\* - Recovery outside QC limits

DP - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits

## **AUTOMATED DATA REVIEW SUMMARY**

**Facility:** SWMU 58  
**Event:** 2004 10 SWMU 58 Vertical Profile Borings  
**Contract:** 9T9H213C  
**Sample Delivery Group:** 0411354

**Field Contractor:** Parsons Engineering Science, Salt Lake City  
**Laboratory Contractor:** Ecology and Environment, Inc., Lancaster, NY  
**Data Review Contractor:** Synectics, Sacramento, CA  
**Guidance Document:** *Final Phase II RCRA Facility Investigation SWMU-58 Workplan, December 2003*

<b>Analytical Method</b>	<b>Normal Samples</b>	<b>Field QC Samples</b>
SW8260B	3	2



This report assesses the analytical data quality associated with the analyses listed on the preceding cover page. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in Final Phase II RCRA Facility Investigation SWMU-58 Workplan, December 2003 to the extent possible. Where definitive guidance is not provided, data has been evaluated in a conservative manner using professional judgment. In cases where two qualifiers are listed as an action, such as "J/UJ", the first qualifier applies to positive results, and the second to non-detect results.

Samples were collected by Parsons Engineering Science, Salt Lake City; analyses were performed by Ecology and Environment, Inc., Lancaster, NY and were reported under sample delivery group (SDG) 0411354. Results have been evaluated electronically using electronic data deliverables (EDDs) provided by the laboratory. The laboratory data summary forms (hard copy) have been reviewed during this effort and compared to the automated review output. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative. The following quality control elements were evaluated during this review effort:

- Technical Holding Times
- Continuing Calibration Verification
- Method Blank Contamination
- Field Blank Contamination
- Blank Spike Accuracy
- Blank Spike Precision
- Matrix Spike Accuracy
- Matrix Spike Precision
- Surrogate Recovery
- Laboratory Duplicate Precision
- Field Duplicate Precision

A minimum of ten percent of sample and QC results were manually evaluated for compliance with project specific requirements and consistency with hard copy results. The following reports were generated during the evaluation of this data set and are presented as attachments to this report as applicable.

**Data Submission Warnings** – Warnings encountered during the data submission process are evaluated and their affect on data quality is discussed in the narrative.

**Batch** – The analytical batch report is reviewed for completeness and compliance with project specific requirements. Incomplete or non-compliant run sequences are identified and their impact on data quality are discussed in the narrative.

**QC Outlier** – Results exceeding the evaluation criteria are reviewed for compliance with project requirements and a minimum of ten percent of the non-compliant QC values reported electronically are verified for consistency with hard-copy values.

**Qualified Results** – Qualified results are evaluated for compliance with project requirements and ten percent of qualified results are verified for consistency with the QC Outlier Report.

**Field Duplicate** – Field duplicate comparison results are evaluated for compliance with project requirements and ten percent of values reported are verified for consistency with the hard-copy data.

**Rejected Results** – All rejected results are evaluated for compliance with project requirements. The reason for rejection of the data is verified against hard copy data.

Analytical deficiencies, project non-compliance issues and inconsistencies with hard copy results observed during ADR evaluation process and their impact on data quality are summarized in the ADR narrative.

Out of control events experienced by the laboratory have warranted the qualification of 0 % ( 0 results) and the rejection of 0 % ( 0 results) of the data set. These deficiencies are detailed in the referenced attachments, and discussed in the ADR narrative, where appropriate.

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Released by

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Date

## Reason and Comment Codes

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<u>Code</u>	<u>Definition</u>
C1	Diluted Out
C2	Flag Parent Only
C2S	Flag Parent (Soil); Batch (Water)
C3	No Action
C4	No QC Outliers
C5	One or both values <5x RL
C6	Recalculated Value
C7	Material Blanks
C8	Spike Insignificant
C9	No Flags; set to ND by method/cal. blank

### Reasons

<u>Code</u>	<u>Definition</u>
A	Serial dilution
B	Calibration Blank - Negative
	Negative Blank
B1	Blank
B2	Calibration Blank
C	Continuing Calibration Verification
	Continuing Calibration Verification RRF
D	BS RPD
	Field Duplicate RPD
D1	Lab Replicate RPD
D2	MS RPD
E	Exceeds Linear Calibration Range
F	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF
	Initial Calibration RSD
H	Test Hold Time
	Prep Hold Time
I	Internal standard
K1	Equip Blank
K2	Field Blank
K3	Trip Blank
L	LCS Recovery
M	MS Recovery
N	Blank - No Action
O	Interference check sample
P	Column RPD
Q	Material Blank
S	Surrogate
T	Receipt Temperature
TI	Tentatively Identified Compound
TR	Trace Level Detect
W	Column breakdown (pesticides)
X	Raised reporting limit
Y	Analyte not confirmed on second column

## **ADR CASE NARRATIVE**

**Laboratory ID: 0411354**

Prior to loading and processing data, modifications to the project setup may be requested by the laboratory and/or contractor, and approved by the client. These modifications allow the loading of data that was not in complete agreement with the project guidance document; in some cases, variances to the project document may be in process, in others, the changes are required to accept data that had not been generated in compliance with the project guidance document. All project setup modifications are listed below:

**There were no project setup modifications associated with this sample delivery group.**

### **Chemistry Data Quality**

It was found that all field sample reporting limits (RL) reported by the lab did not meet the project specified RLs required in the project setup.

### **Data Verification**

The data verification process includes a manual review of information on the chains of custody and laboratory case narratives, a check of all rejected results and a minimum of 10 percent of sample and QC results for consistency with hard copy reports, and a cursory review of all reports generated during the automated review process. The following comments are associated with the verification process:

**There were no data verification findings associated with this sample delivery group that require discussion beyond that summarized in the attached reports.**

All of the reports utilized during the data verification process are provided as attachments to this report.

# Batch Report

Facility: SWMU 58  
 Lab: ECEN  
 Filename: 0411354  
 Status: Certified - 12/16/2004  
 User: EvinMcKinney

Test Method: SW8260B  
 Prep Method: SW5030  
 Leach Method: NONE

<u>Test Batch</u>	<u>Prep Batch</u>	<u>Leach Batch</u>	<u>Location</u>	<u>Matrix</u>	<u>Field Sample ID</u>	<u>Lab Sample ID</u>	<u>Test Date and Time</u>	<u>Sample Type</u>
PERY41130A	0411304p1r	NA	LABQC	WQ		CCV1078348	11/30/2004 12:55:00PM	CV1
	0411304p1r	NA	LABQC	WQ		LCS1845211	11/30/2004 2:15:00PM	BS1
	0411304p1r	NA	LABQC	WQ		MB1845211	11/30/2004 2:46:00PM	LB1
	0411304p1r	NA	FIELDQC	WQ	TRIP BLANK	0411354-05	11/30/2004 3:46:00PM	TB1
	0411304p1r	NA	D-12	WG	D-12GW001	0411354-01	11/30/2004 4:18:00PM	N1
	0411304p1r	NA	D-13	WG	D-13GW001	0411354-02	11/30/2004 4:49:00PM	N1
	0411304p1r	NA	D-13	WG	D-13FD001	0411354-03	11/30/2004 5:21:00PM	FD1
	0411304p1r	NA	D-16	WG	D-16GW001	0411354-04	11/30/2004 5:52:00PM	N1
	0411304p1r	NA	D-16	WG	D-16GW001	0411354-04	11/30/2004 7:01:00PM	MS1
	0411304p1r	NA	D-16	WG	D-16GW001	0411354-04	11/30/2004 7:32:00PM	SD1

## Detected Results

Facility: SWMU 58  
Event: 2004 10 SWMU 58 Vertical Profile Borings  
Reference: ISSS-539-01

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SDG: 0411354

### Volatile Organic Compounds by Capillary GC/MS

<u>Test/Leach</u>	<u>Matrix</u>	<u>Field Sample ID</u>	<u>Type</u>	<u>Analyte</u>	<u>RI</u>	<u>Lab Result</u>	<u>Qualified Result</u>	<u>Units</u>	<u>Reason</u>
SW8260B/NONE	WG	D-13FD001	FD	Chloroform	1.0	0.20 J	0.20 J	UG/L	TR
SW8260B/NONE	WG	D-13GW001	N	Chloroform	1.0	0.19 J	0.19 J	UG/L	TR
SW8260B/NONE	WQ	TRIP BLANK	TB	Methylene Chloride	2.0	0.21 J	0.21 J	UG/L	TR
SW8260B/NONE	WQ	TRIP BLANK	TB	Toluene	1.0	0.26 J	0.26 J	UG/L	TR

## QC Outliers

Facility: SWMU 58  
 Event: 2004 10 SWMU 58 Vertical Profile Borings  
 Reference: 9T9H213C

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SDG 0411354

<u>Test/Leach</u>	<u>QCElement</u>	<u>Sample</u>	<u>Type</u>	<u>Dil'n</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Warning</u> <u>Limits</u>	<u>Control</u> <u>Limits</u>	<u>Qualifier</u>	<u>Reason</u>	<u>Comnt.</u>
SW8260B/NONE	Trip Blk. Cont.	TRIP BLANK	TB1	1.00	Methylene Chloride	0.21	UG/L	< 0.128	< 2	U / None	K3	
SW8260B/NONE	Trip Blk. Cont.	TRIP BLANK	TB1	1.00	Toluene	0.26	UG/L	< 0.119	< 1	U / None	K3	

## Qualified Results

Facility: SWMU 58  
Event: 2004 10 SWMU 58 Vertical Profile Borings  
Reference: ISSS-539-01

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SDG: 0411354

### Volatile Organic Compounds by Capillary GC/MS

<u>Test/Leach</u>	<u>Matrix</u>	<u>Field Sample ID</u>	<u>Type</u>	<u>Analyte</u>	<u>RL</u>	<u>Lab Result</u>	<u>Qualified Result</u>	<u>Units</u>	<u>Reason</u>
SW8260B/NONE	WG	D-13FD001	FD	Chloroform	1.0	0.20 J	0.20 J	UG/L	TR
SW8260B/NONE	WG	D-13GW001	N	Chloroform	1.0	0.19 J	0.19 J	UG/L	TR
SW8260B/NONE	WQ	TRIP BLANK	TB	Methylene Chloride	2.0	0.21 J	0.21 J	UG/L	TR
SW8260B/NONE	WQ	TRIP BLANK	TB	Toluene	1.0	0.26 J	0.26 J	UG/L	TR



## **DATA MANAGEMENT NARRATIVE**

**Laboratory ID: 0411354**

### **Data Submission**

The data submission process incorporates a series of stored procedures designed to identify valid value (VVL), logical (LE), and project specific errors (PSE) in electronic data deliverables (EDD). Automated data review (ADR) is most efficient when data generators correct all errors. Dependent primarily upon the electronic reporting capabilities of the data generator, the severity of the logical and project specific errors listed below have been reduced to warnings. A warning log is generated with each data submission and is presented as an attachment to this report. A brief explanation of each error encountered for this data set and the potential impact on data quality is summarized below.

#### **1. Project Specific Error (PSE) spPSE01L\_Invalid\_Units\_QC**

This PSE occurs when laboratory quality control samples are reported with units of percent as opposed to true values. This inconsistency does not affect data quality, unless the submittal is scheduled for delivery to the AFCEE in accordance with the ERPIMS 4.0 specification. Automated data review can be performed for laboratory QC when units are reported in percent or in concentration units. However, to avoid this warning on future submittals, the laboratory would need to report these values in units of concentration (i.e., ug/L).

#### **2. Logical Error (LE) spLE01\_QAPPFLAGS\_F**

This LE warning occurs when there are positive results less than the RL and associated QAPPFLAGS are not "F". This requirement is only necessary if the project is an AFCEE project or if the data is to be submitted to ERPIMS. To avoid this warning in the future, apply QAPPFLAGS of "F" whenever the detected result is less than the RL.

A detailed description of the stored procedures utilized during the data submission process is provided as an attachment to this report (Submission Warnings).

## Submission Warnings

Facility: SWMU 58  
Data Generator: ECEN  
File Name: W:\2004\0411354\0411354.LB1

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### PSE

<u>Query Name</u>	<u>Finding</u>	<u>Record Count</u>
spPSE01L_Invalid_Units_QC	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is CV/ORG; UNITS is PERCENT	21
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is MS/ORG; UNITS is PERCENT	4
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is MS/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is BS/ORG; UNITS is PERCENT	4
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is SD/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is BS/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is N/STD; UNITS is PERCENT	9
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is SD/ORG; UNITS is PERCENT	4
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is LB/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is CV/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is TB/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is FD/STD; UNITS is PERCENT	3

### WVL

<u>Query Name</u>	<u>Finding</u>	<u>Record Count</u>
spLE01_QAPPFLAGS_F	PARVQ is TR; PARVAL is 0.2620; RL is 1.0000; QAPPFLAGS is J	1
	PARVQ is TR; PARVAL is 0.1930; RL is 1.0000; QAPPFLAGS is J	1
	PARVQ is TR; PARVAL is 0.2070; RL is 2.0000; QAPPFLAGS is J	1
	PARVQ is TR; PARVAL is 0.1950; RL is 1.0000; QAPPFLAGS is J	1

## Submission Warnings

Facility: SWMU 58  
Data Generator: ECEN  
File Name: W:\2004\0411354\0411354.LB1

---

---

Total Record Count: 189  
Error Count: 0  
Warning Count: 67

## **APPENDIX G**

# PARSONS

406 West South Jordan Parkway, Suite 300 • South Jordan, Utah 84095 • (801) 572-5999 • Fax (801) 572-9069

## Memorandum

**To:** Dean Reynolds, TEAD; Larry McFarland, TEAD  
**Copy:** Maryellen Mackenzie, USACE; Carl Cole, USACE; Doug Mackenzie, USACE; Richard Jirik, Parsons  
**From:** Jan Barbas, Parsons; Jeff Bigelow, Parsons  
**Date:** Wednesday, November 10, 2004  
**Subject:** TEAD SWMU-58 RFI - Waste Management

---

This letter is to recommend disposition of the five drums summarized in Table One, attached. The waste was generated in association with the drilling of well D-16.

Five drum of saturated soil cutting waste was generated and one sample labeled IDW11 was taken. IDW11 was analyzed for TCLP VOCs. Analysis was conducted by Ecology and Environment, Inc, Lancaster NY, a Utah Certified laboratory.

Results have been received as data packages and electronic data deliverables. Parsons has reviewed the data and found QC to be acceptable. Analytical results and case narrative are attached in portable document format.

### Listed Wastes Analysis:

No constituents were detected. Therefore no listed waste codes should be applied.

### Characteristic Wastes Analysis:

The waste is known to be primarily soil. Therefore generator's reasonable knowledge may be used to exclude the characteristics of ignitability, reactivity and corrosivity.

No constituents were. Therefore no characteristic waste codes (40 CFR Part 261.24) should be applied.

### Disposition:

Parsons recommends that this waste be returned to the site for disposal on the ground surface.

Parsons will arrange to dispose of the waste per your written instructions.

[illegible]

**From:** McFarland, Larry [larry.mcfarland@us.army.mil]

**Sent:** Monday, November 15, 2004 7:51 AM

**To:** Barbas, Jan; Bigelow, Jeff; Cole, Carl; Reynolds, Dean; doug.d.mackenzie@usace.army.mil; Jirik, Richard; McFarland, Larry; Maryellen.Mackenzie@usace.army.mil

**Subject:** RE: TEAd Waste Management  
Jan/Jeff

The Tooele Army Depot Environmental Office and reviewed the analytical provided for soil cuttings generated from monitoring well D-16. We concur with your recommendation to return the soil to sell site D-16 for disposal on the surface surrounding the wellhead. Please provide TEAD with a schedule for completing the work, and a list of those drums returned to the site after completion. If you should have any questions, please gie me a call.

Thanks

Larry McFarland

Environmental Office, SJMTE-CS-EO

1 Tooele Army Depot, Building 8

Tooele, Utah 84074-5003

Phone (435) 833-3235 Fax (435) 833-2839

[larry.mcfarland@us.army.mil](mailto:larry.mcfarland@us.army.mil)



## analytical services center

International Specialists in Environmental Analysis

4493 Walden Avenue, Lancaster, New York 14086

Tel: 716/685-8080, 800/327-6534 • Fax: 716/685-0852 • Email: asc@ene.com



November 08, 2004

Jan Barbas  
Parsons Engineering Science, Inc.  
406 W. South Jordan Pkwy.  
Suite 300  
South Jordan, Utah 840953944

RE: Tooele RCRA Phase II

Work Order No.: 0410322

Dear Jan Barbas,

Analytical Services Center received 1 sample on Wednesday, October 27, 2004 for the analyses presented in the following report.

The ASC certifies that the test results in this report meet all requirements of NELAC for which it holds certification except as noted in this narrative and/or as flagged in the report.

The ASC is accredited in the Fields of Testing Potable water (SDWA), Solid and Chemical Materials (Solid Hazardous Wastes, RCRA), Water (CWA and other non-potable water) and Air and Emissions. Its primary accrediting authorities are New York State Department of Health and Florida Department of Health. The particular analytes/methods certified may be ascertained by requesting the laboratory's current certificates from your laboratory Project Manager.

You will receive an invoice under separate cover.

E & E will retain the samples addressed in this report for 30 days, unless otherwise instructed by the client. If additional storage is requested, the storage fee is \$1.00 per sample container per month, to accrue until the client authorizes sample destruction.

This report is not to be reproduced, except in full, without the written approval of the laboratory.

Sincerely,

Tony Bogolin

Project Manager

CC:

Enclosures as noted





**Analytical Services Center**  
International Specialists in Environmental Analysis  
Lancaster New York 14086  
Phone: (716) 685-8080 Fax: (716) 685-0852

## Laboratory Results

NYS ELAP ID#: 10486

---

**CLIENT:** Parsons Engineering Science, Inc.  
**Project:** Tooele RCRA Phase II  
**Lab Order:** 0410322  
**Date Received:** 10/27/2004

---

### Work Order Sample Summary

---

Lab Sample ID	Client Sample ID	Alt. Client Id	Collection Date
0410322-01A	IDW11		10/20/2004 9:00:00 AM

---



## Analytical Services Center

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

## Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

---

**Client:** PARSONS ENGINEERING SCIENCE, INC.  
**Project:** Tooele RCRA Phase II  
**Lab Order:** 0410322

---

### CASE NARRATIVE

#### GCMS VOLATILES

A DB 624 column and a trap packed with OV-1, Tenax, silica gel and activated charcoal was used for the volatile analysis.

#### TCLP analysis

All samples were analyzed within hold time.

#### Calibration and Tunes

All initial and continuing calibrations were acceptable.

There were no manual integrations required.

#### QC

All surrogate recoveries were within acceptable limits.

All blank analyses were acceptable.

All laboratory control sample/duplicate (LCS/LCSD) recoveries and RPD values were acceptable.

All internal standard area responses were acceptable.

Tony Bogolin

Project Manager

November 8, 2004



# Analytical Services Center

International Specialists in Environmental Analysis

Lancaster New York 14086

Phone: (716) 685-8080 Fax: (716) 685-0852

## Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Order: 0410322

Client: Parsons Engineering Science, Inc.

Project: Tooele RCRA Phase II

## DATES SUMMARY REPORT

Sample ID (CLIENT)	Matrix	Test Name	Collection Date	Received Date	HT (Days) / HT Expire	Analized* - Analysis/BatchID	Type	DF	#Analytes
0322-01A IDW11	Soil	TCLP Ext for VOCs by M 1311	10/20/2004 9:00:00 AM	10/27/2004 8:50:00 AM	14:C 11/3/2004 9:00:00 AM	11/1/2004 9:11:18 AM 200404250	NA	NA	NA
		TCLP Volatile Organic Compounds by Method 8260B			14:T 11/16/2004 3:21:23 PM	11/3/2004 5:45:00 PM 1054931	SAMP	10	10

From: C-Collection / R-Receipt(VTSR) / P-Prep / T-TCLP Prep

"Analized" reflects the analysis date and time or injection time for analytical tests. For preparation tests "Analized" reflects the start of the preparation except when "AFCEE criteria used"; flag indicates date of completion of the preparation.

TCLP/SPLP Extractions and subsequent preparation tests... "Analized" reflects the date of TCLP/SPLP Extraction/preparation. For Re-extracted (RE) samples: Preparation tests completed dates reflects extraction from the original sample leachate unless an "RE" Sample exists for the extraction (tumble) test.



## Analytical Services Center

International Specialists in Environmental Analysis

Lancaster New York 14086

Phone: (716) 685-8080

Fax: (716) 685-0852

## Laboratory Results

NYS ELAP ID#: 10486

---

**Client:** Parsons Engineering Science, Inc.  
**Project:** Tcoele RCRA Phase II  
**Work Order:** 0410322

---

### Method References

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### GCMS Volatiles

---

TCLP VOCs by Method 8260B

Test Methods for Evaluating Solid Waste: Physical/Chemical  
Methods. 3rd ed. 1986. Volumes 1A, 1B, 1C & Volume 2. (Includes  
all Updates). U.S. Environmental Protection Agency, Office of Solid  
Waste and Emergency Response.

# SAMPLE RECEIPT RECORDS

<b>CHAIN OF CUSTODY</b> PARSONS COC ID: 815	Project Name:	Tooele Industrial Area	Contractor:	Parsons - SLC	Parsons Point of Contact: Jan Barbas
	Project Manager:	Ed Staes	Installation:	TEAD	Suite 300
	Sample Coordinator:	Jeff Bigelow	Sample Program:	Shallow Soil Sampling	South Jordan, Utah 84095 (801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End Depth	Total Conts.
IDW	IDW11	IDW11	SO	G	N	1	10-20-04	09:00	JTB	-	-	1
Analysis		Lab	Coiler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOCTCLP		ECEN	3	1				IDW sample for containers:				

PARSN20429301-04  
PARSN20429401

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>Jeff Bigelow</i>	10-27-04 12:00	<i>Ed Staes</i>	10-27-04 8:50



# Cooler Receipt Form

No. of Packages:	<u>1</u>	Date Received:	<u>10-27-04</u>
Package Receipt No.:	<u>14822</u>	Project or Site Name:	
Client:	<u>Persero</u>		

## A. Preliminary Examination and Receipt Phase

1. Did coolers come with airbill or packing slip?	Circle One <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA		
Circle carrier here and print airbill number below: <u>Fed Ex</u> Airborne Client Other _____			
Shipped as high hazard or dangerous goods?			
2. Did cooler(s) have custody seals?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> NA
3. Were custody seals unbroken and intact on receipt?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> NA
4. Were custody seals dated and signed?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> NA
5. How was package secured?	<input type="radio"/> Not secured	<input type="radio"/> Fiberglass Tape	<input checked="" type="radio"/> <u>Packing tape</u>

## B. Unpacking Phase

6. Date cooler(s) opened: <u>10-27-04</u>	Cooler(s) opened by: <u>SPC</u> <small>(Signature)</small>				
7. Was a temperature blank vial included inside cooler(s)?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> NA				
Please Record Temperature Vial or Cooler Temperature for Each Cooler, Range (2° - 6°C)*					
Airbill No.	Temp. °C	Airbill No.	Temp. °C	Airbill No.	Temp. °C
<u>8457 2785 4200</u>	<u>4.0</u>				
Thermometer No.: <u>234</u>		Correction Factor: <u>0.0</u>		*If temperature is outside of acceptable range, prepare a PM Notification form indicating affected containers.	
8. Were the C-O-C forms received?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA				
C-O-C forms numbers if present:					
9. Was enough packing material used in cooler(s)?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA				
Type of material: <input type="radio"/> Vermiculite <input checked="" type="radio"/> Bubble Wrap <input type="radio"/> Other _____					
10. If cooling was required, what was the means (type ice) of cooling used:	<input type="radio"/> Wet <input type="radio"/> Dry <input type="radio"/> Blue <input type="radio"/> Other			<input type="radio"/> NA	
11. Were all containers sealed in separate plastic bags?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA				
12. Did all containers arrive unbroken and in good condition?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA				
13. Interim storage area if not logged: <u>W</u>					
In: Date <u>10-27-04</u> Time <u>10:00</u>	Signature <u>SPC</u>				
Out: Date <u>10-27-04</u> Time <u>13:49</u>	Signature <u>W.H.H.</u>				

## C. Login Phase

Samples Logged in By Signature: <u>W.H.H.</u>	Date: <u>10-27-04</u>
14. Were all container labels complete (e.g. date, time preserved)?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
15. Were all C-O-C forms filled out properly in black ink and signed?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
16. Did the C-O-C form agree with containers received?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
17. Were the correct containers used for the tests requested?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
18. Were the correct preservatives listed on the sample labels?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
19. Was a sufficient sample volume sent for the tests requested?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
20. Were all volatile samples received without headspace?	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> NA

# RESULTS SUMMARY





International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: IDW11

Lab Order: 0410322

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 10/20/2004 9:00:00 A % Moist:

Lab ID: 0410322-01A

Sample Type: SAMP

Matrix: Soil

Test Code: 1\_1311\_8260B\_L

TCLP VOLATILE ORGANIC COMPOUNDS BY METHOD 8260B

Method: SW8260B

Prep Method: SW1311

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1-Dichloroethene	ND		0.0500	mg/L	10	11/3/2004 5:45:00 PM	NILES_041103E	DWW
1,2-Dichloroethane	ND		0.0500	mg/L	10			
2-Butanone	ND		0.100	mg/L	10			
Benzene	ND		0.0500	mg/L	10			
Carbon tetrachloride	ND		0.0500	mg/L	10			
Chlorobenzene	ND		0.0500	mg/L	10			
Chloroform	ND		0.0500	mg/L	10			
Tetrachloroethene	ND		0.0500	mg/L	10			
Trichloroethene	ND		0.0500	mg/L	10			
Vinyl chloride	ND		0.100	mg/L	10			
Surr:1,2-Dichloroethane-d4	91		82 - 124	%REC	10	11/3/2004 5:45:00 PM	NILES_041103E	DWW
Surr:4-Bromofluorobenzene	96		87 - 115	%REC	10			
Surr:Toluene-d8	96		85 - 115	%REC	10			

Definitions:

\* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. UT3213820894	Manifest Document No. P4012	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address Tooele Army Depot Environmental Office, SJMTE-CS-EO Building 8, Attn: Dean Reynolds, Tooele, UT 84074			A. State Manifest Document Number		
4. Generator's Phone (435) 833-3504			B. State Generator's ID		
5. Transporter 1 Company Name MP Environmental		6. US EPA ID Number CAT000624247	C. State Transporter's ID		
7. Transporter 2 Company Name		8. US EPA ID Number	D. Transporter's Phone (435) 843-7802		
9. Designated Facility Name and Site Address Tooele Army Depot Environmental Office, SJMTE-CS-EO Utah Industrial Depot, Jade St. and B Ave., Tooele, UT 84074		10. US EPA ID Number UT3213820894	E. State Transporter's ID		
			F. Transporter's Phone		
			G. State Facility's ID		
			H. Facility's Phone (801) 971-8415		
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)			12. Containers No. Type	13. Total Quantity	14. Unit Wt/Vol
a. <input type="checkbox"/> HM Hazardous Waste Solid, N.O.S. (TCE), #9, NA3077, PG III DRUM #'s PARSNZ0429301 thru 04			5 DM	40.00	est. P
b. <input type="checkbox"/> UND PARSNZ0429401					
c. <input type="checkbox"/>					
d. <input type="checkbox"/>					
J. Additional Descriptions for Materials Listed Above a. Trichloroethylene			K. Handling Codes for Wastes Listed Above D-16		
15. Special Handling Instructions and Additional Information Emergency Contact - Tooele Army Depot Fire Department (435) 833-2015					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name Larry McFarland			Signature Larry McFarland		Month Day Year 1/24/94
17. Transporter 1 Acknowledgement of Receipt of Materials					
Printed/Typed Name GARY HILL			Signature Gary Hill		Month Day Year 1/24/94
18. Transporter 2 Acknowledgement of Receipt of Materials					
Printed/Typed Name			Signature		Month Day Year 1/24/94
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.					
Printed/Typed Name Mark D. Reynolds			Signature Mark D. Reynolds		Month Day Year 1/24/94

## **APPENDIX H**

# PARSONS

406 West South Jordan Parkway, Suite 300 • South Jordan, Utah 84095 • (801) 572-6999 • Fax (801) 572-9069

## Memorandum

**To:** Dean Reynolds, TEAD; Larry McFarland, TEAD  
**Copy:** Maryellen Mackenzie, USACE; Carl Cole, USACE; Doug Mackenzie, USACE; Richard Jirik, Parsons; Jeff Bigelow, Parsons  
**From:** Jan Barbas, Parsons  
**Date:** Wednesday, November 17, 2004  
**Subject:** TEAD SWMU-58 RFI - Waste Management

This letter is to recommend disposition of the contents of the Baker tank summarized in Table One. The waste was generated in association with equipment decontamination and development of wells D-12, D-13 and D-16.

The Baker tank sample was labeled IDW11. IDW11 was analyzed for total VOCs. Analysis was conducted by Ecology and Environment, Inc, Lancaster NY, a Utah Certified laboratory.

Results have been received as data packages and electronic data deliverables. Parsons has reviewed the data and found QC to be acceptable. Analytical results and case narrative are appended.

### Listed Wastes Analysis:

Benzene at 0.590 µg/L, ethylbenzene at 23.3 µg/L, m,p-xylenes at 90.8 µg/L, naphthalene at 2.22 µg/L, o-xylene at 45.3 µg/L, methylene chloride 330 µg/L, and toluene at 2970 µg/L were detected. As a result it is recommended that the waste be classified as hazardous F001, F002 and F005 listed wastes.

### Characteristic Wastes Analysis:

The waste is known to be primarily water. Therefore generator's reasonable knowledge may be used to exclude the characteristics of ignitability, reactivity and corrosivity.

No constituents were detected in excess of TCLP limits. Therefore no characteristic waste codes should be applied.

### Land Disposal Restrictions Analysis:

Methylene chloride and toluene exceed land disposal restriction limits for wastewaters.



**Disposition:**

Parsons recommends that this waste be processed through the TEAD wastewater treatment facility.

Parsons will arrange to dispose of the waste per your written instructions.

**From:** McFarland, Larry [larry.mcfarland@us.army.mil]  
**Sent:** Thursday, November 18, 2004 7:15 AM  
**To:** Barbas, Jan; Bigelow, Jeff; colec@emh2.tooele.army.mil; reynoldd@emh2.tooele.army.mil; doug.d.mackenzie@usace.army.mil; Jirik, Richard; mcfarlal@emh2.tooele.army.mil; Maryellen.Mackenzie@usace.army.mil  
**Cc:** Kubacki, Steve  
**Subject:** RE: TEAD Phase II RFI Waste Management - Baker Tank  
Richard

Based our discussions earlier this week concerning the disposal of the decon and development water from from monitoring wells D-12, D-13, and D-16 you indicated that analysis of the water detected toluene and methylene chloride. Based on this discussion TEAD concurred with your recommendation to dispose of the water at the Ground Water Treatment Plant. On 11/17/04, the TEAD Environmental Office received a copy of the analytical which listed other contaminants in addition to those we had discussed earlier. Based on the analysis provided, the Ground Water Treatment Plant is not permitted to treat all of these constituents. As we are not permitted to to treat all of the detected contaminants, the water **CAN NOT** be disposed of at the treatment facility. Parsons should make arrangement to dispose of the water offsite.

Larry McFarland  
Environmental Office, SJMTE-CS-EO  
1 Tooele Army Depot, Building 8  
Tooele, Utah 84074-5003  
Phone (435) 833-3235 Fax (435) 833-2839  
[larry.mcfarland@us.army.mil](mailto:larry.mcfarland@us.army.mil)  
[mcfarlal@emh2.tooele.army.mil](mailto:mcfarlal@emh2.tooele.army.mil)

-----Original Message-----

**From:** Barbas, Jan [mailto:Jan.Barbas@parsons.com]  
**Sent:** Wednesday, November 17, 2004 3:08 PM  
**To:** Bigelow, Jeff; colec@emh2.tooele.army.mil; reynoldd@emh2.tooele.army.mil; doug.d.mackenzie@usace.army.mil; Jirik, Richard; mcfarlal@emh2.tooele.army.mil; Maryellen.Mackenzie@usace.army.mil  
**Subject:** TEAD Phase II RFI Waste Management - Baker Tank

Hi,

Attached find a memo recommending disposal of the contents of a Baker Tank.

If there are any questions or comments, please contact me or Jeff Bigelow.

Jan Barbas

Project Chemist

parsons

406 W. South Jordan Parkway, Suite 300

Salt Lake City, Utah 84095

(801) 572-5999 Voice

(801) 572-9069 FAX

[jan.barbas@parsons.com](mailto:jan.barbas@parsons.com)

[www.parsons.com](http://www.parsons.com)

### Table One

[illegible]



## Analytical Services Center

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

## Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: PARSONS ENGINEERING SCIENCE, INC.  
Project: Tooele RCRA Phase II  
Lab Order: 0411048

### CASE NARRATIVE

A trip blank labeled IDWTB4 was received with the IDW12 sample (COC 910). It was not analyzed per Jan Barbas' direction on November 3, 2004.

#### GCMS VOLATILES

A DB 624 column and a trap packed with OV-1, Tenax, silica gel and activated charcoal was used for the volatile analysis.

#### Sample Analysis

The volatile samples were determined to be at a pH of 1.

The sample was analyzed within hold time.

Sample IDW12 exceeded the calibration range for methylene chloride and toluene. It was reanalyzed at a 100-fold dilution and both sets of results are reported.

#### Calibration and Tunes

All initial and continuing calibrations were acceptable.

Manual integrations were not required.

#### QC

All surrogate recoveries were within acceptable limits.

All blank analyses were acceptable.

All laboratory control sample recoveries were acceptable.

All internal standard area responses were acceptable.

Tony Bogolin  
Project Manager  
November 16, 2004





**Analytical Services Center**  
International Specialists in Environmental Analysis  
Lancaster, New York 14086-  
Phone: (716) 685-8080 Fax: (716) 685-0852

## Laboratory Results

NYS ELAP ID#: 10486  
Phone: (716) 685-8080

Order: 0411048  
Client: Parsons Engineering Science, Inc.  
Project: Tooele RCRA Phase II

## DATES SUMMARY REPORT

B) Sample ID (CLIENT)	Matrix	Test Name	Collection Date	Received Date	HT (Days) / HT Expire	Analyzed* - Analysis/BatchID	Type	DF	#Analytes	F
1048-01A IDW12	Water	Low Level VOCs by Method 8260B	11/2/2004 2:30:00 PM	11/3/2004 8:50:00 AM	14:C 11/16/2004 2:30:00 PM	11/13/2004 8:33:00 AM 1060865	SAMP	1	21	

From: C-Collection / R- Receipt(VTSR) / P-Prep / T-TCLP Prep

"Analyzed" reflects the analysis date and time or injection time for analytical tests. For preparation tests "Analyzed" reflects the start of the preparation except when "AFCEE criteria used"; flag indicates date time of completion of the preparation.

TCLP/SPLP Extractions and subsequent preparation tests... "Analyzed" reflects the date of TCLP/SPLP Extraction/preparation. For Re-extracted (RE) samples: Preparation tests completed dates reflects extraction from the original sample leachate unless an "RE" Sample exists for the extraction (tumble) test.



**Analytical Services Center**  
International Specialists in Environmental Analysis  
Lancaster, New York 14086-  
Phone: (716) 685-8080 Fax: (716) 685-0852

## Laboratory Results

NYS ELAP ID#: 10486

---

**Client:** Parsons Engineering Science, Inc.  
**Project:** Tooele RCRA Phase II  
**Work Order:** 0411048

### Method References

---

#### GCMS Volatiles

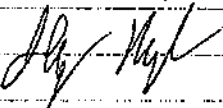
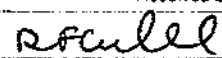
Parsons, Tooele - VOCs, Low Level by GCMS Method 8260B

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes 1A, 1B, 1C & Volume 2. (Includes all Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

<b>CHAIN OF CUSTODY</b> <b>PARSONS</b> <b>COC ID: 909</b>	Project Name:	Tooele Industrial Area	Contractor:	Parsons - SLC	Parsons Point of Contact: Jan Barbas
	Project Manager:	Ed Staes	Installation:	TEAD	406 W. South Jordan Parkway
	Sample Coordinator:	Jeff Bigelow	Sample Program:	Shallow Soil Sampling	Suite 300 South Jordan, Utah 84095 (801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Bag. Depth	End. Depth	Total Conts.
	IDW12	IDW12	WW	B	N	1	11-2-04	14:30	JJB			3
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN	4	3			11020401					

IDW sample for  
 Baker Tank PARSN20426801  
 (Well Development + Decontamination water  
 for wells D-12, D-13, and D-16

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	11-2-04 16:00		11-3-04 8:50

# CHAIN OF CUSTODY

PARSONS

COC ID: 910

Project Name: Tooele Industrial Area

Contractor: Parsons - SLC

Parsons Point of Contact: Jan Barbas  
406 W. South Jordan Parkway

Project Manager: Ed Staes

Installation: TEAD

Suite 300  
South Jordan, Utah 84095

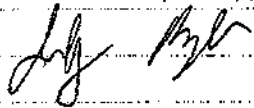
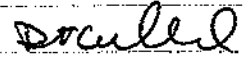
Sample Coordinator: Jeff Bigelow

Sample Program: Shallow Soil Sampling

(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
	IDWTB4	IDWTB4	WQ	NA	TB	1	11-2-04	14:30	JJB			1
	Analysis	Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN	4	1								

Associated with waste water  
sample IDW12

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	11-2-04 16:00		11-3-04 8:50



C. Login Phase			
Samples Logged In By Signature: <i>[Signature]</i>		Date: 11/3/04	
14. Were all container labels complete (e.g. date, time preserved)?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	NA
15. Were all C-O-C forms filled out properly in black ink and signed?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	NA
16. Did the C-O-C form agree with containers received?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	NA
17. Were the correct containers used for the tests requested?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	NA
18. Were the correct preservatives listed on the sample labels?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	NA
19. Was a sufficient sample volume sent for the tests requested?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	NA
20. Were all volatile samples received without headspace?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	NA



# Analytical Services Center

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

## Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: IDW12

Lab Order: 0411048

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/2/2004 2:30:00 PM % Moist:

Lab ID: 0411048-01A

Sample Type: SAMP

Matrix: Water

Test Code: C\_8260B\_5030B\_LL\_W\_018

### LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B\_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/13/2004 8:33:00 AM	LINUS_041113A	MRD
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	0.590	J	1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	ND		1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	23.3		1.00	µg/L	1			
m,p-Xylene	90.8		1.00	µg/L	1			
Methylene chloride	332	E	2.00	µg/L	1			
Naphthalene	2.22		1.00	µg/L	1			
o-Xylene	45.3		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	736	E	1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr: 1,2-Dichloroethane-d4	99		70 - 130	%REC	1	11/13/2004 8:33:00 AM	LINUS_041113A	MRD
Surr: 4-Bromofluorobenzene	93		70 - 130	%REC	1			
Surr: Toluene-d8	96		70 - 130	%REC	1			

#### Definitions:

\* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not ignite

I - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



**Analytical Services Center**  
International Specialists in Environmental Analysis  
4493 Walden Avenue  
Lancaster, New York 14086

## Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: IDW12

Lab Order: 0411048

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/2/2004 2:30:00 PM % Moist:

Lab ID: 0411048-01A

Sample Type: DL

Matrix: Water

Test Code: C\_8260B\_5030B\_LL\_W\_018

LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B\_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		100	µg/L	100	11/14/2004 6:12:00 PM	LINUS_0411148	MRD
1,1,2-Trichloroethane	ND		100	µg/L	100			
1,1-Dichloroethane	ND		100	µg/L	100			
1,1-Dichloroethene	ND		100	µg/L	100			
1,2-Dichloroethane	ND		100	µg/L	100			
1,2-Dichloropropane	ND		100	µg/L	100			
Benzene	ND		100	µg/L	100			
Carbon tetrachloride	ND		100	µg/L	100			
Chloroethane	ND		100	µg/L	100			
Chloroform	ND		100	µg/L	100			
cis-1,2-Dichloroethene	ND		100	µg/L	100			
Ethylbenzene	ND		100	µg/L	100			
m,p-Xylene	61.8	J	100	µg/L	100			
Methylene chloride	330		200	µg/L	100			
Naphthalene	ND		100	µg/L	100			
o-Xylene	23.4	J	100	µg/L	100			
Tetrachloroethene	ND		100	µg/L	100			
Toluene	2970		100	µg/L	100			
trans-1,2-Dichloroethene	ND		100	µg/L	100			
Trichloroethene	ND		100	µg/L	100			
Vinyl chloride	ND		100	µg/L	100			
Surr: 1,2-Dichloroethane-d4	103		70 - 130	%REC	100	11/14/2004 6:12:00 PM	LINUS_0411148	MRD
Surr: 4-Bromofluorobenzene	98		70 - 130	%REC	100			
Surr: Toluene-d8	91		70 - 130	%REC	100			

### Definitions:

\* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits

### A. GENERAL INFORMATION

GENERATOR EPA ID # **UT3213820894**

GENERATOR CODE (Assigned by Clean Harbors) **T00469**

ADDRESS **Tooele Army Depot**

GENERATOR PROFILE No. **CH83147**

GENERATOR NAME **Tooele Army Depot**

CITY **Tooele**

STATE **UT** ZIP **84074**

PHONE:

CUSTOMER CODE (Assigned by Clean Harbors) **PAR1392**

ADDRESS **406 W South Jordan Parkway Suite 300**

CUSTOMER NAME: **Parsons Engineering Science In**

CITY **South Jordan**

STATE **UT** ZIP **84095**

### B. WASTE DESCRIPTION

WASTE DESCRIPTION: **Purge water and decon water D12, D13, D16**

PROCESS GENERATING WASTE (Please provide detailed description of process generating waste):

**Development of monitoring wells and decontamination of drill rig equipment**

### C. PHYSICAL PROPERTIES (at 25C or 77F)

<b>PHYSICAL STATE</b> SOLID WITHOUT FREE LIQUID POWDER MONOLITHIC SOLID <input checked="" type="checkbox"/> LIQUID WITH NO SOLIDS LIQUID/SOLID MIXTURE % FREE LIQUID % SETTLED SOLID % TOTAL SUSPENDED SOLID SLUDGE GAS/AEROSOL		<b>NUMBER OF PHASES/LAYERS</b> <input checked="" type="checkbox"/> 1    2    3    TOP % BY VOLUME (Approx.)    MIDDLE BOTTOM		<b>VISCOSITY (if liquid present)</b> <input checked="" type="checkbox"/> 1 - 100 (e.g. WATER) 101 - 500 (e.g. MOTOR OIL) 501 - 10,000 (e.g. MOLASSES) > 10,000		<b>COLOR</b>  <u>Clear/Water</u>
		<b>ODOR</b> <input checked="" type="checkbox"/> NONE MILD STRONG Describe:	<b>BOILING POINT</b> <= 95 °F > 95 °F 101 - 129 °F <input checked="" type="checkbox"/> >= 130 °F	<b>MELTING POINT</b> < 140 °F 140-200 °F > 200 °F	<b>TOTAL ORGANIC CARBON</b> <input checked="" type="checkbox"/> <= 1% 1-9% >= 10%	
<b>FLASH POINT</b> < 73 °F 73 - 100 °F 101 - 140 °F 141 - 200 °F <input checked="" type="checkbox"/> > 200 °F	<b>pH</b> <= 2 2.1 - 6.9 <input checked="" type="checkbox"/> 7 (Neutral) 7.1 - 12.4 >= 12.5	<b>SPECIFIC GRAVITY</b> < 0.8 (e.g. Gasoline) 0.8-1.0 (e.g. Ethanol) <input checked="" type="checkbox"/> 1.0 (e.g. Water) 1.0-1.2 (e.g. Antifreeze) > 1.2 (e.g. Methylene Chloride)		<b>ASH</b> < 0.1    > 20 0.1 - 1.0    Unknown 1.1 - 5.0 5.1 - 20.0    Actual:		<b>BTU/LB</b> <input checked="" type="checkbox"/> < 2,000 2,000-5,000 5,000-10,000 > 10,000 Actual:
Actual:	Actual:			<b>VAPOR PRESSURE (for liquids only)</b> mm Hg		

D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN -- MAX	UOM	CHEMICAL	MIN -- MAX	UOM
Benzene	0.000 -- 0.000	PPB			
Ethylbenzene	0.000 -- 23.000	PPB			
m,p-Xylene	0.000 -- 90.000	PPB			
Methylene chloride	0.000 -- 332.000	PPB			
o-Xylene	0.000 -- 45.000	PPB			
Toluene	0.000 -- 735.000	PPB			
Water	99.000 -- 100.000	%			
Napthalene	0.000 -- 2.000	PPB			

ANY METAL OBJECTS PRESENT?

YES ☐ NO ☒

If yes include dimension



E. CONSTITUENTS -- Are these values based on testing or knowledge?

☐ Knowledge

☒ Testing

If constituent concentrations are based on analytical testing, analysis must be provided. If based on knowledge, basis of knowledge must be provided below

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D004	ARSENIC	5.0		
D005	BARIUM	100.0		
D006	CAESIUM	1.0		
D007	CHROMIUM	5.0		
D008	LEAD	5.0		
D009	MERCURY	0.2		
D010	SELENIUM	1.0		
D011	SILVER	5.0		

RCRA	VOLATILE COMPOUND	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D018	BENZENE	0.5		0.0
D019	CARBON TETRACHLORIDE	0.5		
D021	CHLOROBENZENE	100.0		
D022	CHLOROFORM	6.0		
D028	1,2-DICHLOROETHANE	0.5		
D029	1,1-DICHLOROETHYLENE	0.7		
D035	METHYL ETHYL KETONE	200.0		
D039	TETRACHLOROETHYLENE	0.7		
D040	TRICHLOROETHYLENE	0.5		
D043	VINYL CHLORIDE	0.2		

RCRA	SEMI-VOLATILE COMPOUND	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D023	o-CRESOL	200.0		
D024	m-CRESOL	200.0		
D025	p-CRESOL	200.0		
D026	CRESOL (TOTAL)	200.0		
D027	1,4-DICHLOROBENZENE	7.5		
D030	2,4-DINITROTOLUENE	0.13		
D032	HEXACHLOROBENZENE	0.13		
D033	HEXACHLOROBTADIENE	0.5		
D034	HEXACHLOROETHANE	3.0		
D036	NITROBENZENE	2.0		
D037	PENTACHLOROPHENOL	100.0		
D038	PYRIDINE	5.0		
D041	2,4,5-TRICHLOROPHENOL	400.0		
D042	2,4,6-TRICHLOROPHENOL	2.0		

RCRA	PESTICIDES AND HERBICIDE	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D012	ENDRIN	0.02		
D013	UNDAE	0.4		
D014	METHOXYCHLOR	10.0		
D015	TOXAPHENE	0.5		
D016	2,4-D	10.0		
D017	2,4,5-TP (SILVEX)	1.0		
D020	CHLORDANE	0.03		
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008		

OTHER METALS	MIN	MAX	UOM
ALUMINUM			
ANTIMONY			
BERYLLIUM			
CALCIUM			
COPPER			
MAGNESIUM			
MOLYBDENUM			
NICKEL			
POTASSIUM			
SILICON			
SODIUM			
THALLIUM			
TIN			
VANADIUM			
ZINC			

NON-METALS	MIN	MAX	UOM
BROMINE			
CHLORINE			
FLUORINE			
IODINE			
SULFUR			

OTHER NON-METALS	MIN	MAX	UOM
AMMONIA			
REACTIVE SULFIDE			
CYANIDE-TOTAL			
CYANIDE AMENABLE			
CYANIDE REACTIVE			

OTHER CHEMICALS	MIN	MAX	UOM
PHENOL			
Total Petroleum Hydrocarbons			

OTHER	PCBs
HOCs <input checked="" type="checkbox"/> NONE < 1000 PPM >= 1000 PPM	<input checked="" type="checkbox"/> NONE < 50 PPM >= 50 PPM  IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?  YES <input checked="" type="checkbox"/> NO

## ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

 YES ☒ NO

(If yes, explain)

ASBESTOS

DEA REGULATED SUBSTANCES

DIOXIN

EXPLOSIVE

HERBICIDE

FUMING / SMOKING WASTE

NONE OF THE ABOVE

INFECTIOUS, PATHOGENIC, OR ETIOLOGICAL AGENT

OXIDIZER

OSHA REGULATED CARCINOGENS

PESTICIDE

POLYMERIZABLE

RADIOACTIVE

REDUCING AGENT

SHOCK SENSITIVE

SPONTANEOUSLY IGNITES WITH AIR

THERMALLY SENSITIVE

WATER REACTIVE

**F. REGULATORY STATUS**

☒ YES ☐ NO USEPA HAZARDOUS WASTE?  
 F001 F002 F003 F005  
 YES ☒ NO DO ANY STATE WASTE CODES APPLY?  
☒ YES ☐ NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?  
 LDR CATEGORY: This is subject to LDR.  
 VARIANCE INFO:  
☒ YES ☐ NO IS THIS A WASTEWATER PER 40 CFR PART 268.2?  
 YES ☒ NO IF ANY WASTE CODES D001, D002, D003 (OTHER THAN REACTIVE CYANIDE OR REACTIVE SULFIDE), D004-D0011, D012-D017  
 NON-WASTEWATERS, OR D018- D043 APPLY, ARE ANY UNDERLYING HAZARDOUS (UHCs) PRESENT ABOVE UNIVERSAL TREATMENT  
 YES ☒ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?  
 YES ☒ NO IS THIS WASTE SUBJECT TO CATEGORICAL PRETREATMENT DISCHARGE STANDARDS?  
 IF YES, SPECIFY POINT SOURCE CATEGORY LISTED IN 40 CFR PART 4  
 YES ☒ NO IS THIS WASTE REGULATED UNDER THE BENZENE NESHAP RULES? (IS THIS WASTE FROM A CHEMICAL MANUFACTURING, COKE BY-PRODUCT  
 RECOVERY, OR PETROLEUM REFINERY PROCESS?)  
 YES ☒ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?  
 YES ☒ NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?  
 YES ☒ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE GREATER THAN  
 77 KPa (11.2PSIA)?  
 YES ☒ NO IS THIS CERCLA REGULATED (SUPERFUND ) WASTE ?

**G. D.O.T INFORMATION:** (Include proper shipping name, hazard class and ID number).

 US D.O.T DESCRIPTION: Hazardous waste, liquid, n.o.s., (Benzene, Ethylbenzene, Xylenes, Methylene Chloride, Naphthalene, Toluene) , 9,
**H. TRANSPORTATION REQUIREMENTS**

 ESTIMATED SHIPMENT FREQUENCY: ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY ☒ OTHER Varies

IF BULK LIQUID OR BULK SOLID PLEASE INDICATE THE EXPECTED NUMBER OF LOADS PER SHIPPING FREQUENCY

CONTAINERIZED		<input checked="" type="checkbox"/> BULK LIQUID		BULK SOLID	
0 CONTAINERS/SHIPMENT		GALLONS/SHIPMENT: <u>1,000Min -6,000 Max</u>	GAL	SHIPMENT UOM:	TON YARD
STORAGE CAPACITY		<input checked="" type="checkbox"/> FROM TANKS: TANK SIZE <u>6,000</u>	GAL	PER SHIPMENT:	0.00 MIN 0.00 MAX
CONTAINER TYPE		FROM DRUMS		STORAGE CAPACI	TON/YC
CUBIC YARD BOX		VEHICLE TYPE:		VEHICLE TYPE:	
PALLET		VAC TRUCK		DUMP TRAILER	
TOTE TANK		<input checked="" type="checkbox"/> TANK TRUCK		ROLL OFF BOX	
OTHER:		RAILROAD TANK CAR		INTERMODAL ROLLOFF BOX	
DRUM SIZE:		CHECK COMPATIBLE STORAGE MATERIAL		CUSCO/VACTOR	
CONTAINER MATERIAL:		<input checked="" type="checkbox"/> STEEL <input checked="" type="checkbox"/> STAINLESS STEEL		OTHER	
<input checked="" type="checkbox"/> STEEL		<input checked="" type="checkbox"/> RUBBER LINED <input checked="" type="checkbox"/> FIBERGLASS LINED			
FIBER		<input checked="" type="checkbox"/> DERAKANE			
PLASTIC		OTHER			
OTHER					

**I. SPECIAL REQUEST**

SPECIFIC DISPOSAL RESTRICTIONS OR REQUESTS:

SPECIAL WASTE HANDLING REQUIREMENTS

OTHER COMMENTS OR REQUESTS:

**J. BIENNIAL / ANNUAL REPORTING INFORMATION**

 SIC CODE 9711 SOURCE CODE A09 FORM CODE B119 ORIGIN CODE 2
**K. SAMPLE STATUS**

 REPRESENTATIVE SAMPLE HAS BEEN SUPPLIE ☒ YES ☐ NO SAMPLED BY DATE SAMPLED WHERE SENT

**GENERATORS CERTIFICATION**

I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples  
 submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants  
 Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE

NAME (PRINT)

TITLE

DATE

**FOR CLEAN HARBORS USE ONLY**

CHI REPRESENTATIVE COMPLETING PROFILE:

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. UT3213820894		Manifest Document No. P4014	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.				
3. Generator's Name and Mailing Address Tooele Army Depot Environmental Office, SJMTE-CS EO Building 8, Attn: Dean Reynolds, Tooele, UT 84074					A. State Manifest Document Number					
4. Generator's Phone (435) 833-3504					B. State Generator's ID					
5. Transporter 1 Company Name MP Environmental					C. State Transporter's ID					
6. US EPA ID Number CAT0062427					D. Transporter's Phone (435) 843-7802					
7. Transporter 2 Company Name					E. State Transporter's ID					
8. US EPA ID Number					F. Transporter's Phone					
9. Designated Facility Name and Site Address Clean Harbors Aragonite Facility 11600 N. Aptess Road Aragonite, UT 84029					G. State Facility's ID					
10. US EPA ID Number UTD981552177					H. Facility's Phone (801) 323-8100					
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)					12. Containers		13. Total Quantity			
					No.	Type				
					a.	HM	Hazardous Waste Liquid, n.o.s. (Benzene, Ethylbenzene, Xylenes, Methylene Chloride, Napthalene, Toluene), 9, NA3082, PGIII	20	TT	1000
					b.					
					c.					
J. Additional Descriptions for Materials Listed Above					K. Handling Codes for Wastes Listed Above					
a. CH83147B - Decon and Development Water					D-12 D-13 D-16 PARS N20926801					
15. Special Handling Instructions and Additional Information Emergency Contact - Tooele Army Depot Fire Department (435) 833-2015										
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.										
Printed/Typed Name				Signature		Month Day Year				
17. Transporter 1 Acknowledgement of Receipt of Materials										
Printed/Typed Name				Signature		Month Day Year				
18. Transporter 2 Acknowledgement of Receipt of Materials										
Printed/Typed Name				Signature		Month Day Year				
19. Discrepancy Indication Space										
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.										
Printed/Typed Name				Signature		Month Day Year				



UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. UT3213820894	Manifest Document No. 24015	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address Tooele Army Depot Environmental Office, SJMTE-CS EO, Building 8, Attn: Dean Reynolds, Tooele, UT 84074				A. State Manifest Document Number	
4. Generator's Phone (435) 833-3504				B. State Generator's ID	
5. Transporter 1 Company Name MP Environmental		6. US EPA ID Number CAT00624247		C. State Transporter's ID	
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone (435) 843-7802	
9. Designated Facility Name and Site Address Clean Harbors Aragonite Facility 11600 N. Aptees Road Aragonite, UT 84029		10. US EPA ID Number UTD981552177		E. State Transporter's ID	
				F. Transporter's Phone	
				G. State Facility's ID	
				H. Facility's Phone (801) 323-8100	
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)		12. Containers		13. Total Quantity	14. Unit Wt/Vol
a. Hazardous Waste Liquid, n.o.s. (Benzene, Ethylbenzene, Xylenes, Methylene Chloride, Naphthalene, Toluene), 9, NA3082, PG III		No. Type			Waste No.
b.					P001, P002, P003, P005
c.					
d.					
J. Additional Descriptions for Materials Listed Above a. CH83147B - Decon and Development Water				K. Handling Codes for Wastes Listed Above D-12 D-13 D-16 PAK SN20426801	
15. Special Handling Instructions and Additional Information Emergency Contact - Tooele Army Depot Fire Department (435) 833-2015					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name		Signature		Month Day Year	
17. Transporter 1 Acknowledgement of Receipt of Materials					
Printed/Typed Name		Signature		Month Day Year	
18. Transporter 2 Acknowledgement of Receipt of Materials					
Printed/Typed Name		Signature		Month Day Year	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.					
Printed/Typed Name		Signature		Month Day Year	



UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. UT3213820894	Manifest Document No. 2117	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address Tooele Army Depot Environmental Office, SJMTE-CS-EO Building 8, Attn: Dean Reynolds, Tooele, UT 84074			A. State Manifest Document Number		
4. Generator's Phone (435) 833-3504			B. State Generator's ID		
5. Transporter 1 Company Name MP Environmental		6. US EPA ID Number CAT00624247	C. State Transporter's ID		
7. Transporter 2 Company Name		8. US EPA ID Number	D. Transporter's Phone (435) 843-7802		
9. Designated Facility Name and Site Address Clean Harbors Aragonite Facility 11600 N. Aptees Road Aragonite, UT 84029		10. US EPA ID Number UTD981552177	E. State Transporter's ID		
			F. Transporter's Phone		
			G. State Facility's ID		
			H. Facility's Phone (801) 323-8100		
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)			12. Containers No. Type	13. Total Quantity	14. Unit Wt/Vol
a. Hazardous Waste Liquid, n.o.s. (Benzene, Ethylbenzene, Xylenes, Methylene Chloride, Naphthalene, Toluene), 9, NA3082, PG III			1	TT	1
b.					
c.					
d.					
J. Additional Descriptions for Materials Listed Above			K. Handling Codes for Wastes Listed Above		
a. CH83147B - Decon and Development Water			P-HS-N204268-01 Rinse out water		
15. Special Handling Instructions and Additional Information  Emergency Contact - Tooele Army Depot Fire Department (435) 833-2015 ERG #171					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name Larry McFarland			Signature Larry McFarland		Month Day Year 1/23/04
17. Transporter 1 Acknowledgement of Receipt of Materials					
Printed/Typed Name Tom Porter			Signature Tom Porter		Month Day Year 1/23/04
18. Transporter 2 Acknowledgement of Receipt of Materials					
Printed/Typed Name			Signature		Month Day Year
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.					
Printed/Typed Name			Signature		Month Day Year

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. UT3213820894	Manifest Document No. P4013	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address Tooele Army Depot Environmental Office, SJMTE-CS-EO Building 8, Attn: Dean Reynolds, Tooele, UT 84074				A. State Manifest Document Number		
4. Generator's Phone (435) 833-3504				B. State Generator's ID		
5. Transporter 1 Company Name MP Environmental		6. US EPA ID Number CAT000624247		C. State Transporter's ID		
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone (435) 843-7802		
9. Designated Facility Name and Site Address Tooele Army Depot Environmental Office, SJMTE-CS-EO Utah Industrial Depot, Jade St. and B Ave., Tooele, UT 84074		10. US EPA ID Number UT3213820894		E. State Transporter's ID		
				F. Transporter's Phone		
				G. State Facility's ID		
				H. Facility's Phone (801) 971-8415		
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)				12. Containers	13. Total Quantity	14. Unit Wt/Vol
				No.	Type	
a.	Hazardous Waste Liquid, N.O.S. (TCE), 9, NA3082, PG III			001	TL	12,000
b.						
c.						
d.						
J. Additional Descriptions for Materials Listed Above				K. Handling Codes for Wastes Listed Above		
a. Trichloroethylene PARSN20430601 <sup>13</sup> → PARSN2042801 (CMP Tank) (Baker Tank)				D-16		
15. Special Handling Instructions and Additional Information  Emergency Contact - Tooele Army Depot Fire Department (435) 833-2015						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed/Typed Name Larry McFarland				Signature Larry McFarland		Month Day Year 11/10/04
17. Transporter 1 Acknowledgement of Receipt of Materials						
Printed/Typed Name GARY HILL				Signature Gary Hill		Month Day Year 11/10/04
18. Transporter 2 Acknowledgement of Receipt of Materials						
Printed/Typed Name				Signature		Month Day Year
19. Discrepancy Indication Space						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.						
Printed/Typed Name Mark D Reynolds				Signature Mark D Reynolds		Month Day Year 11/10/04